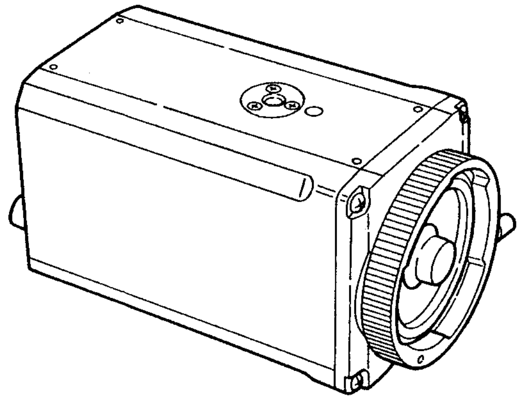
DXC-930/930P
DXC-960MD

3CCD Color Video Camera

Revised-1



SONY®
SERVICE MANUAL

SAFETY RELATED COMPONENT WARNING

Components identified by shading and ⚠ marked on the schematic diagrams and parts list are critical to safe operation. Replace these components with SONY parts whose part numbers appear as shown in this manual or in supplements published by SONY.

Warning—This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a computing device pursuant to Subpart J of Part 15 of FCC rules.

For the customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

Pour les utilisateurs au Canada

Cet appareil est conforme aux normes Classe A pour bruits radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.

Bescheinigung des Herstellers

Hiermit wird bescheinigt, daß die CCD-Videokamera DXC-930P in Übereinstimmung mit den Bestimmungen der Amtsbalattverfügung Nr. 1046/1984 funkentstört ist.
Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Hinweis

Gemäß dem Amtsblatt des Bundesministers für das Post- und Fernmeldewesen Nr. 163/1984 wird der Betreiber darauf aufmerksam gemacht, daß die von ihm mit diesem Gerät zusammengestellte Anlage auch den technischen Bestimmungen dieses Amtsblattes genügen muß.

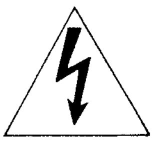
WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

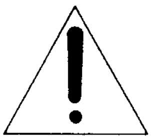
CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

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SECTION 1
GENERAL DESCRIPTION

1-1. FEATURES

High picture quality

The DXC-930/930P* 1/2-inch CCD color video camera can produce high quality pictures thanks to adoption of a high performance three-chip CCD pickup having about 380,000 (DXC-930*) or 420,000 (DXC-930P) effective picture elements. Three features of the camera that combinedly ensure high picture quality are:

- High horizontal resolution: 720 TV lines;
- High sensitivity (defined as minimum required illumination): 2,000 lux at f/5.6 (DXC-930*) or f/5 (DXC-930P);
- High signal-to-noise ratio: 58 dB (DXC-930*) or 56 dB (DXC-930P).

Very small size and light weight

Being very small and very light, the camera can be installed easily and safely even in strictly limited spaces where other small-sized video cameras cannot be. This feature makes it possible to use the camera in an inconspicuous manner. The following are some examples of application:

- Installing on ceilings, walls, pillars or other building members of theaters, concert halls, and so on;
- Incorporating in video conference systems;
- Using as a microscopic or endoscopic system component;
- Using as a roof-top weather monitor camera.

Wide range of incident light control

Thanks to its AGC (automatic gain control) and CCD iris control capabilities, the camera can cope with even great variations in the illuminance of the subject to produce clear and sharp pictures. When shooting under low light, the AGC feature automatically increases the video gain up to eight times. When the amount of incident light is excessive, the CCD iris control feature automatically increases the shutter speed to nearly the same effect that the lens iris is narrowed three stops down.
You can use AGC and CCD iris control combinedly with automatic lens iris control. Combined use of AGC and CCD iris control will also be very advantageous when using the camera with a microscopic system.

Electronic shutter to help overcome difficult shooting conditions

A wide speed range electronic shutter function helps you to overcome awkward shooting conditions. It gives you clear pictures of limited blur even when the subject is fast moving, and acceptably bright still pictures of low-illuminated subjects. When set to flickerless mode, the electronic shutter allows you to take flickerless pictures even under fluorescent light. Furthermore, when you use the electronic shutter in Clear Scan™ mode, you can shoot computer screen displays without horizontal stripe noise.

External synchronization

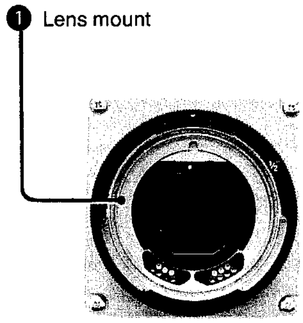
Operation of the camera can be synchronized with an external reference sync signal. When a multi-camera system is built using a number of DXC-930/930P* s, this feature permits video switching and special effect operations to be carried out without involving camera-to-camera variations in picture tone.

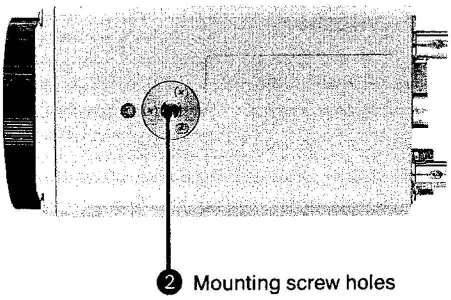
Useful interfaces for building a powerful camera system

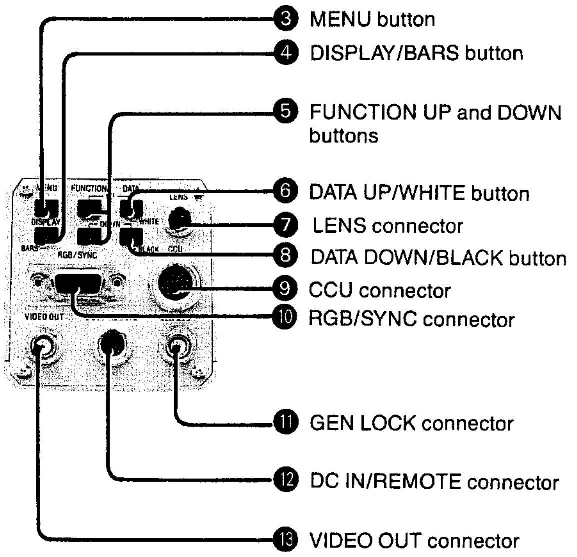
- Three formats of video output are available (composite, Y/C, and R/G/B) to supply a high quality picture signal to various types of video monitor, VTR, and other video equipment.
- An RM-930 remote control unit (not supplied) can be connected to the camera.
- Connecting a CCU-M3/M3P/M7/M7P camera control unit (not supplied) to the camera will permit picture signal transmission over a long cable line of up to 100 m (328 feet) (for the CCU-M3/M3P) or 300 m (984 feet) (for the CCU-M7/M7P).

* The DXC-930 can be replaced with the DXC-960MD.

1-2. LOCATIONS AND FUNCTIONS OF PARTS


❶ Lens mount


❷ Mounting screw holes


❸ MENU button
❹ DISPLAY/BARS button
❺ FUNCTION UP and DOWN buttons
❻ DATA UP/WHITE button
❼ LENS connector
❽ DATA DOWN/BLACK button
❾ CCU connector
❿ RGB/SYNC connector
⓫ GEN LOCK connector
⓬ DC IN/REMOTE connector
⓭ VIDEO OUT connector
MENU
FUNCTION
DATA
LENS
DISPLAY
BARS
RGB/SYNC
WHITE
BLACK
CCU
VIDEO OUT

① Lens mount

Attach here an optional zoom lens, microscope adaptor or endoscope adaptor depending on the intended application of the camera.

② Mounting screw holes (one in the top of the camera body and another in the bottom)

To mount the camera on a building wall, ceiling or the like, or on a tripdod, use either of these holes and a U1/4″-20 UNC screw.

③ MENU (menu recall) button

Pressing this button recalls an operational settings menu (called as the menu in this manual; see page 1-16 , which will be displayed on the screen of the monitor connected to the camera. Pressing again the button makes the menu disappear from the monitor screen.

④ DISPLAY/BARS (menu display control/color bars output) button

With the menu displayed: each press of this button switches the number of display lines between 1 and 8.

With the menu not displayed: pressing this button makes the color bars signal be output.

⑤ FUNCTION UP and DOWN (menu scroll) buttons

UP button: scrolls the menu display upwards.

DOWN button: scrolls the menu display downwards.

⑥ DATA UP/WHITE (higher setting selection/white balance adjustment) button

With the menu displayed: changes the setting value for the higher.

With the menu not displayed: activates the automatic white balance adjustment function.

⑦ LENS connector

When using a $2/3$-inch zoom lens, connect the lens cable to this connector.

For a $1/2$-inch zoom lens, there is no necessity to use this connector.

⑧ DATA DOWN/BLACK (lower setting selection/ black balance adjustment) button

With the menu displayed: changes the setting value for the lower.

With the menu not displayed: activates the automatic black balance adjustment function.

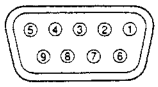
⑨ CCU (camera control unit) connector

Connect a camera control unit such as the CCU-M3/ M3P/M7/M7P to this connector.

⑩ RGB/SYNC (RGB/sync signal output) connector

Outputs RGB signals and a sync signal for them. Use a CCXC- 9DB/CCXC-9DD/CCMC-9DS cable for connection.

Pin assignment



Pin No.	Signal	Pin No.	Signal
1	GND	6	VBS (Y) output
2	GND	7	SYNC output
3	RED output	8	NC
4	GREEN output	9	NC (C output)
5	BLUE output		

⑪ GEN LOCK (reference sync signal input) connector

To make the camera operate in synchronization with a reference sync signal, input that signal to this connector.

⑫ DC IN/REMOTE (DC power input/remote control) connector

Connect a CMA-D1/D1CE camera adaptor (not supplied) to this connector.

- Use the CMA-D1 if your camera is the DXC-930*.
- Use the CMA-D1CE if your camera is the DXC-930P.

This connector is also to be used for connection of an RM-930 remote control unit (not supplied).

⑬ VIDEO OUT (composite video signal output) connector

The camera signal is output from this connector in the form of a composite signal.

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* The DXC-930 can be replaced with the DXC-960MD .

Notes on Use

Mounting the lens

Any inappropriate way of mounting the lens may cause damages to both the camera and lens. Read carefully the instructions given in "Mounting the Lens" on page 1-5.

Power supply

Be sure to operate the camera on a 12 V DC power supplied via an appropriate camera adaptor (see page 1-6) or camera control unit (see page 1-10).

Do not disassemble

Do not open the casing. Be careful that touching any internal precision components may damage them.

Keep foreign matters out of the casing

Be careful not to spill water or other liquids on the camera, or not to get flammable or metallic material inside the casing. If used with any foreign matters inside, the camera may fail or be a cause of fire or electric shock.

Keep well ventilated

Do not block air circulation around the camera to prevent internal heat build-up.

Operating or storage location

Avoid operating or store the camera in the following locations:
- Extremely hot or cold locations (see "Specifications" on page 1-21 for operating and storage temperature ranges);
- Damp or dusty locations;
- Where it is exposed to rain;
- Locations subject to strong vibrations;
- Close to generators of powerful electromagnetic radiation such as radio or TV transmitters.

Transporting

When you transport the camera, repack it as it was originally shipped. Do not discard the packing carton. It will afford maximum protection whenever you transport the camera.

Cleaning

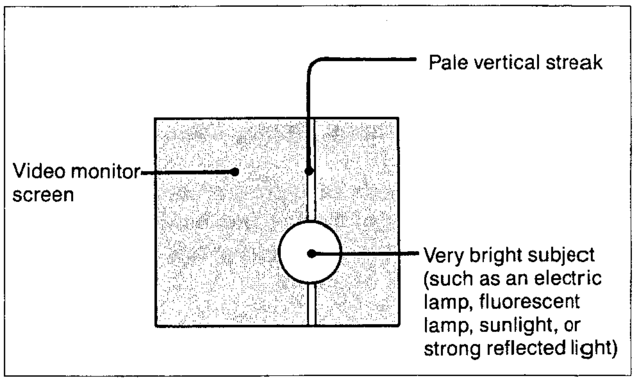
- To clean the external surfaces of the camera, use a soft, dry cloth. For severe stains, use a soft cloth dampened with a small quantity of neutral detergent, then wipe dry.
- Do not use volatile solvents such as alcohol, benzine and thinners; they may damage the surface finish.

Typical CCD Phenomena

Because of the high sensitivity of the CCD image sensors, the following phenomena may appear on the monitor screen while you are using the DXC-930/930P* color camera. These phenomena do not mean that there is anything wrong with the camera.

Vertical smear

This may appear when shooting a very bright subject with most CCD cameras, but only seldom with this DXC-930/930P*.


Pale vertical streak
Video monitor screen
Very bright subject (such as an electric lamp, fluorescent lamp, sunlight, or strong reflected light)

Aliasing

When shooting fine stripes, straight lines or similar patterns, the shot image may appear jagged.

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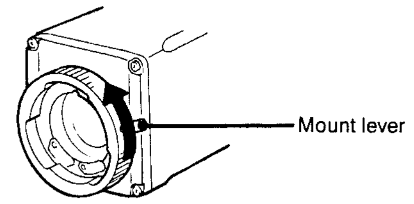
* The DXC-930 can be replaced with the DXC-960MD.

1-3. MOUNTING THE LENS, MICROSCOPE ADAPTOR OR ENDOSCOPE ADAPTOR

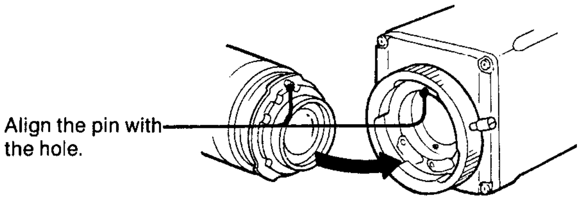
Mounting the Lens

Lenses that can be directly mounted on the camera are of the 1/2-inch bayonet mount type only.
To mount a 2/3-inch lens, it is necessary to use an LO-32BMT lens mount adaptor (not supplied).

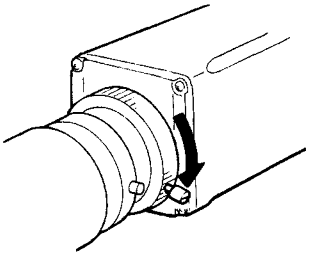
1 Turn the mount lever counter-clockwise as far as it will go. (If the mount cap is in place, remove it.)



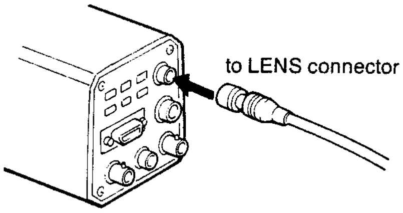
2 Aligning the positioning pin on the lens with the matching hole in the lens mount, fit the lens into the lens mount.



3 Turn the mount lever clockwise as far as it will go, to lock the lens in the lens mount.



4 If the lens is a 2/3-inch one, connect the lens cable to the LENS connector of the camera. (This step is not necessary for 1/2-inch lenses.)



Rear of the camera

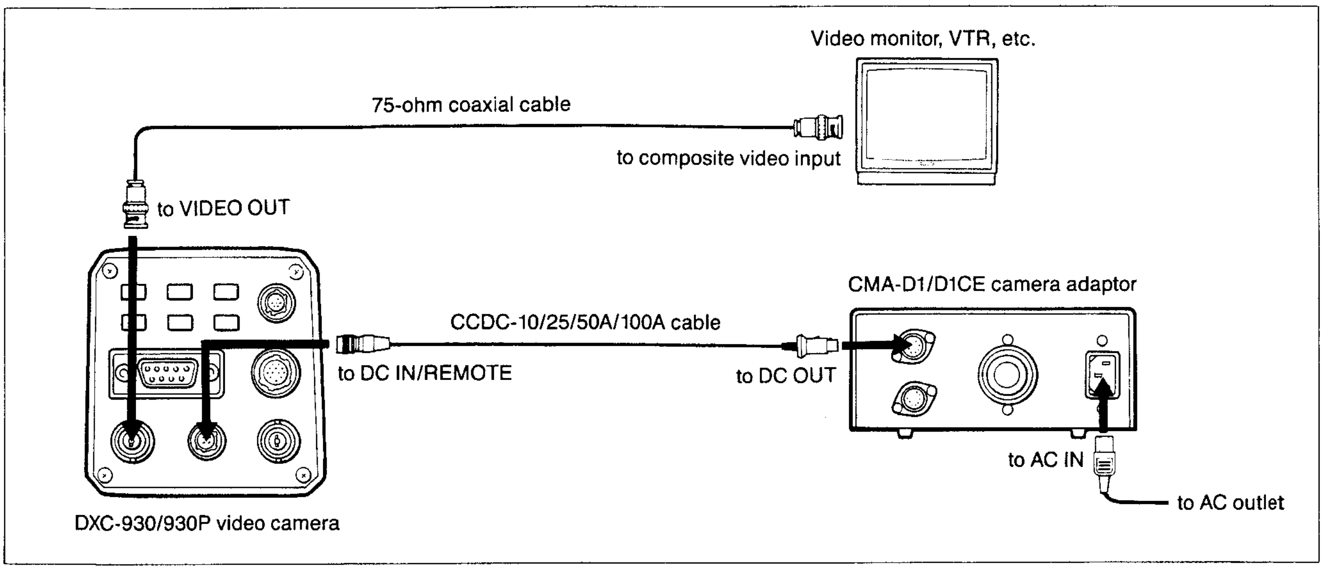
Mounting the Microscope Adaptor or Endoscope Adaptor

To attach the camera to a microscope, an operation microscope or an endoscope, it is necessary to mount an appropriate adaptor on the camera. The method for mounting these adaptors is the same as for lenses. Also refer to the manual for the adaptor.

1-4. CONNECTING TO VIDEO EQUIPMENT HAVING A COMPOSITE VIDEO INPUT

To connect the camera to video equipment having a composite video input connector, use the VIDEO OUT connector. To supply power to the camera, use an appropriate camera adaptor:

- CMA-D1 camera adaptor for the DXC-930 *
- CMA-D1CE camera adaptor for the DXC-930P.


Video monitor, VTR, etc.
75-ohm coaxial cable
to composite video input
to VIDEO OUT
CMA-D1/D1CE camera adaptor
CCDC-10/25/50A/100A cable
to DC IN/REMOTE
to DC OUT
to AC IN
to AC outlet
DXC-930/930P video camera

Connections using the VIDEO OUT connector

Note on use of camera adaptors

Although the CMA-D1/D1CE camera adaptor has two DC output connectors, the power consumption of the DXC-930/930P * does not allow two camera units to be connected to a single adaptor at a time. Be sure to use one camera adaptor for each DXC-930/930P * unit.

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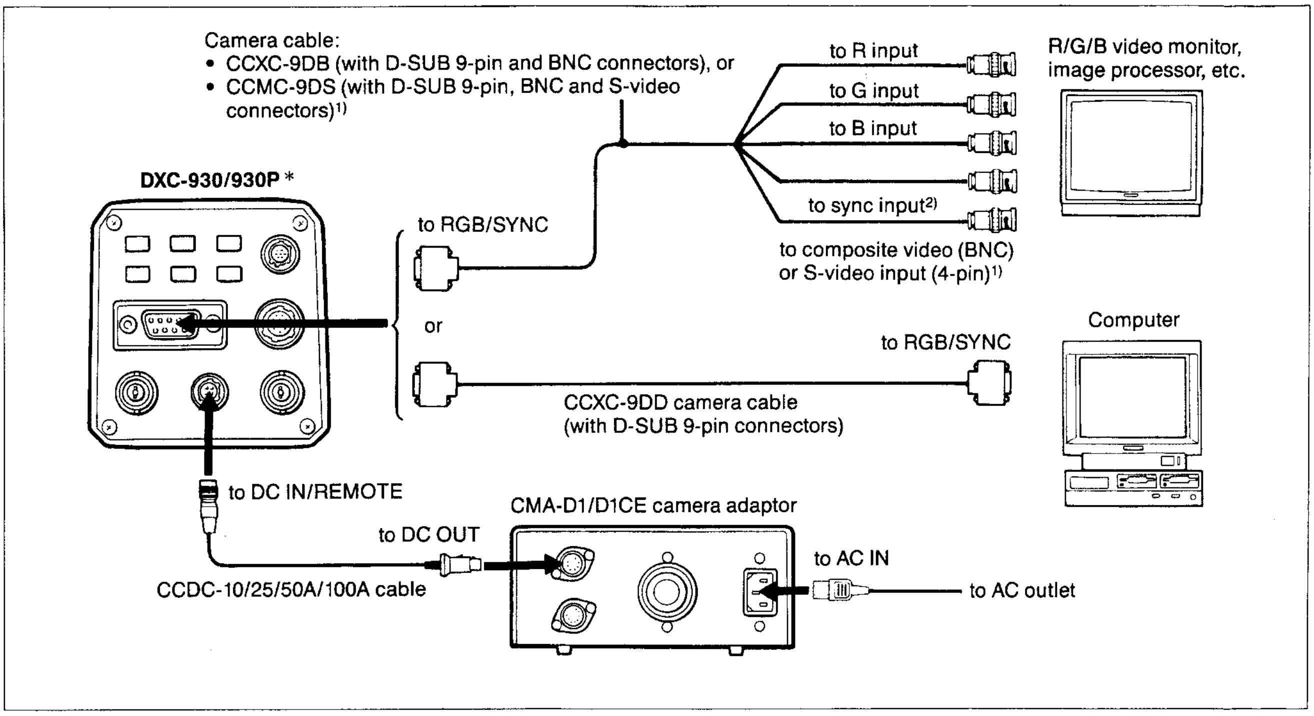
* The DXC-930 can be replaced with the DXC-960MD.

1-5. CONNECTING TO VIDEO EQUIPMENT HAVING R/G/B OR S-VIDEO INPUTS


Camera cable:
• CCXC-9DB (with D-SUB 9-pin and BNC connectors), or
• CCMC-9DS (with D-SUB 9-pin, BNC and S-video connectors)1)
DXC-930/930P *
to RGB/SYNC
or
to R input
to G input
to B input
to sync input2)
to composite video (BNC) or S-video input (4-pin)1)
R/G/B video monitor, image processor, etc.
Computer
to RGB/SYNC
CCXC-9DD camera cable (with D-SUB 9-pin connectors)
to DC IN/REMOTE
CMA-D1/D1CE camera adaptor
to DC OUT
CCDC-10/25/50A/100A cable
to AC IN
to AC outlet

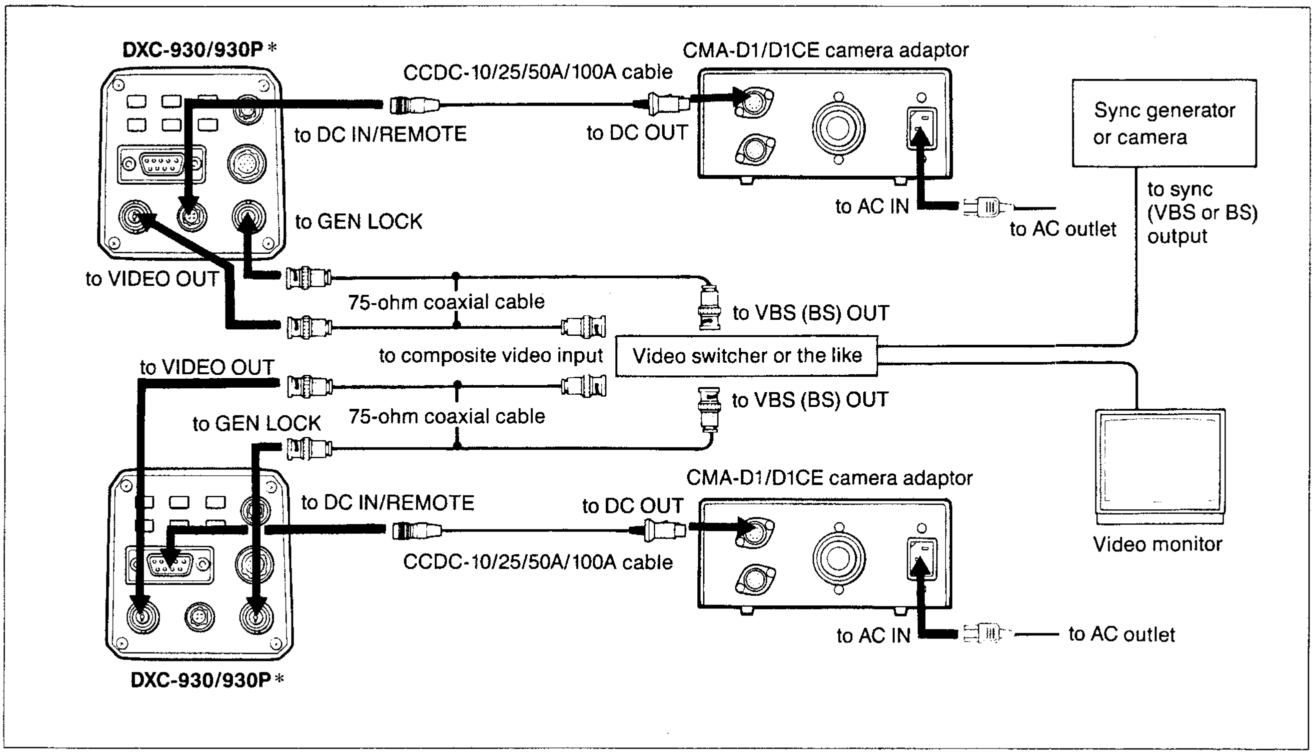
Connections using RGB/SYNC connector

1) To connect separated Y and C signals to the S-video input connector of the video equipment, use a CCMC-9DS camera cable. For switching the camera output between VBS (composite video) and Y/C, see page 1-20.

2) When using a video monitor without sync signal input connector, you can make the camera output a sync-added G signal (G.SYNC). For details, see page 1-20.

* The DXC-930 can be replaced with the DXC-960MD.

1-6. CONNECTIONS FOR MULTI-CAMERA SYSTEM


DXC-930/930P*
CMA-D1/D1CE camera adaptor
CCDC-10/25/50A/100A cable
to DC IN/REMOTE
to DC OUT
Sync generator or camera
to GEN LOCK
to AC IN
to AC outlet
to sync (VBS or BS) output
to VIDEO OUT
75-ohm coaxial cable
to VBS (BS) OUT
to composite video input
Video switcher or the like
to VIDEO OUT
to VBS (BS) OUT
to GEN LOCK
75-ohm coaxial cable
CMA-D1/D1CE camera adaptor
to DC IN/REMOTE
to DC OUT
CCDC-10/25/50A/100A cable
Video monitor
to AC IN
to AC outlet
DXC-930/930P*

Note on multi-camera systems

When using two or more cameras by connecting to the same video switcher or the like, prevent camera-to-camera variations in picture tone by taking the following two measures:

- Supply the same sync signal to the GEN LOCK connectors of all cameras (see the above figure).
- Adjust the subcarrier and horizontal synchronization phases on all cameras. (For more details, see page 1-15).

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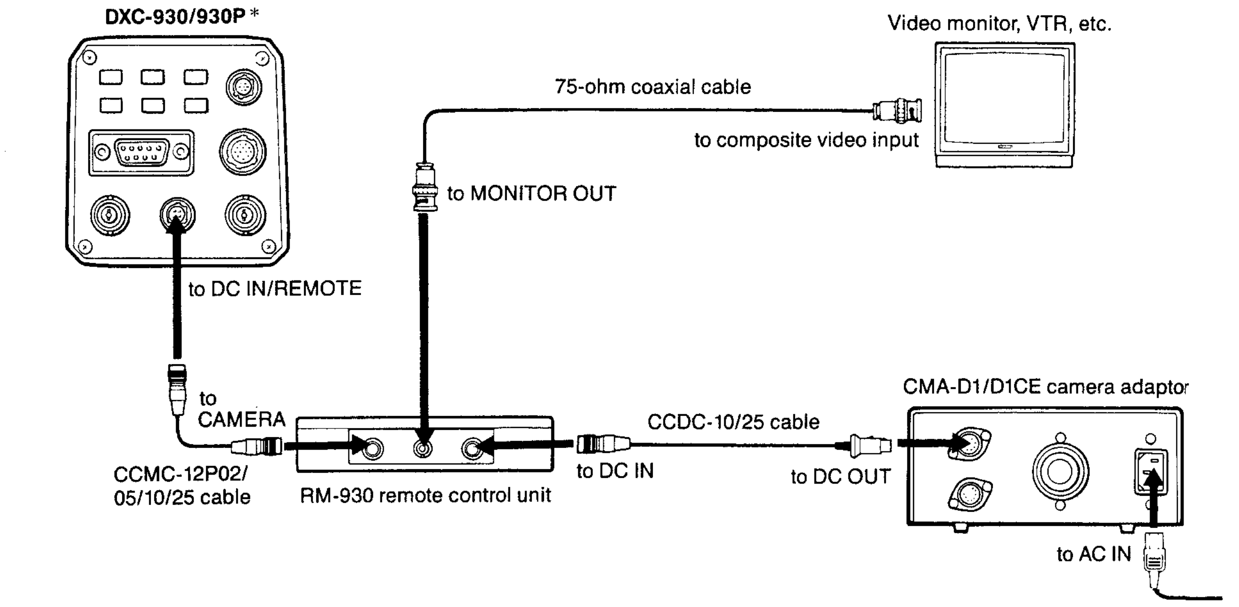
* The DXC-930 can be replaced with the DXC-960MD.

1-7. CONNECTING A REMOTE CONTROL UNIT


DXC-930/930P *
Video monitor, VTR, etc.
75-ohm coaxial cable
to composite video input
to MONITOR OUT
to DC IN/REMOTE
to CAMERA
CMA-D1/D1CE camera adaptor
CCDC-10/25 cable
CCMC-12P02/ 05/10/25 cable
RM-930 remote control unit
to DC IN
to DC OUT
to AC IN
to AC outlet

Note

You cannot connect an RM-930 and a camera control unit (see page 1-10) to the camera at a time.

About the length of the cable line when using the RM-930

The lengthes of the CCMC and CCDC cables are:

CCMC- 5: 5 m (approx. 16 ft)
-10: 10 m (approx. 32 ft)
-25: 25 m (approx. 82 ft)
CCDC-10: 10 m (approx. 32 ft)
-25: 25 m (approx. 82 ft)

To prevent signal deteriorations, use CCMC and CCDC cables in either of the following combinations in terms of length.

CCMC cable	CCDC cable
CCMC-5	CCDC-10 or -25
CCMC-10 or -25	CCDC-10

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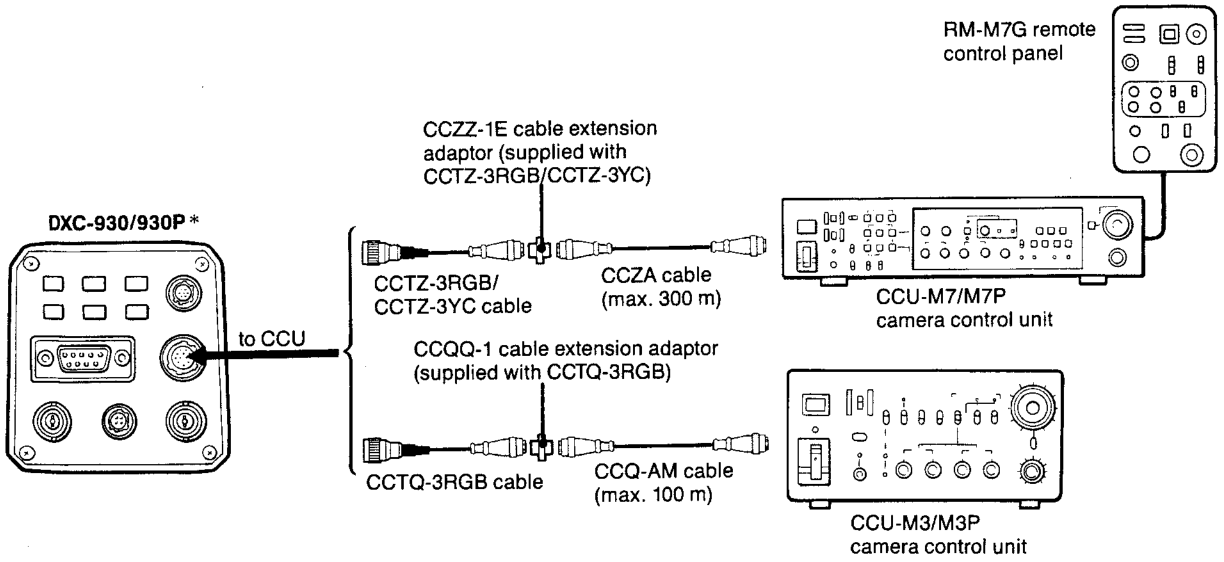
* The DXC-930 can be replaced with the DXC-960MD.

1-8. CONNECTIONG A CAMERA CONTROL UNIT AND A REMOTE CONTROL PANEL


RM-M7G remote
control panel
CCZZ-1E cable extension
adaptor (supplied with
CCTZ-3RGB/CCTZ-3YC)
DXC-930/930P *
CCTZ-3RGB/
CCTZ-3YC cable
CCZA cable
(max. 300 m)
CCU-M7/M7P
camera control unit
to CCU
CCQQ-1 cable extension adaptor
(supplied with CCTQ-3RGB)
CCTQ-3RGB cable
CCQ-AM cable
(max. 100 m)
CCU-M3/M3P
camera control unit

Note

You cannot connect a CCU and an RM-930 to the camera at a time.

When connecting a CCU-M3/M3P

To make video gain control possible, make the following setting on the camera:

GAIN: STEP
STEP: 00 DB

Otherwise, changing the gain level will be impossible on the CCU-M3/M3P.
See page 1-16 for the gain setting procedure.

When connecting a CCU-M7/M7P

To make video gain control possible, make the following settings on the camera:

GAIN: STEP
STEP: 00 DB

Otherwise, changing the gain level will be impossible on the CCU-M7/M7P and only the gain setting on the camera will be effective.
See page 1-16 for the gain setting procedure.

For the CCD iris and electronic shutter, make the following settings on the camera:

CCD IRIS: OFF
SHUTTER: OFF

Otherwise, controlling the electronic shutter will be impossible on the CCU-M7.

To make it possible to change operational settings on the camera

Turn on the CCU while pressing the FUNCTION UP button of the camera. This allows you to use the menu on the camera to change settings for video gain, CCD iris, electronic shutter speed, and other functions not provided on the CCU (page 1-16). To pass the control back to the CCU after changing the settings on the camera, turn off the CCU and then turn it on again.

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* The DXC-930 can be replaced with the DXC-960MD.

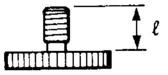
1-9. INSTALLING THE CAMERA

Installing on a wall or ceiling
To install the camera on a wall or ceiling, use an appropriate support or bracket, and a mounting screw as specified below, which matches both the screw hole in the top and that in the bottom of the camera body.

For more details, consult your authorized Sony dealer.

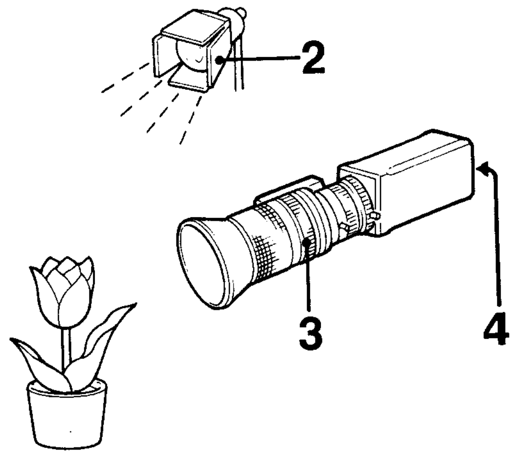
Mounting on the tripod
To mount the camera on a tripod, use the screw hole in the bottom of the camera body.

Mounting screw to be used



U1/4″-20 UNC
ℓ: 4.5 ±0.2 mm (ISO Standard)
0.197 inches (ASA Standard)

1-10. BASIC SHOOTING PROCEDURE



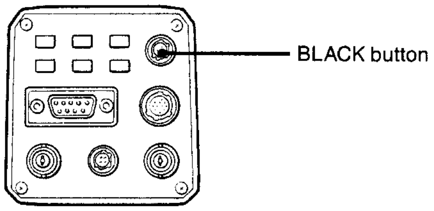
1. Turn on the power of the camera and all connected devices.
2. Illuminate the subject under proper lighting condition.
3. Aim the camera, and adjust the iris, focus and zoom.
4. Adjust the black balance and white balance.
5. Start the shooting.

1-11. ADJUSTING THE BLACK BALANCE

In the following cases, it is necessary to adjust the black balance so that the lower video level portions of the output image are of correct tones:

- when using the camera for the first time;
- when using the camera after a week or longer period without using it; or
- when using the camera after the temperature has changed dramatically.

The black balance setting is preserved even when you turn off the power, and it is not normally necessary to re-adjust it after you turn on the power again.



1 Keep the camera picture displayed on the monitor screen.
  - If the color bars signal is displayed on the screen, press the BARS button to make it disappear.
  - If the menu is displayed on the screen, press the MENU button to make it disappear.

2 Press the BLACK button.
Automatical black balance adjustment begins and is accomplished in several seconds. The "BLACK: OK" message appears on the monitor screen, and the adjusted black level is stored in memory automatically.
(Unless re-adjusted, the stored level will be preserved for about 10 years.)
  - The iris of the lens is automatically closed when you press the BLACK button, and remains so until the end of the black balance adjustment. If you were manually controlling the lens iris before pressing the BLACK button in step **2**, you need to reopen it after adjustment because otherwise it will remain closed.
  - During the adjustment the gain control circuit operates, so the monitor screen flickers several times. Note that this is not a fault.

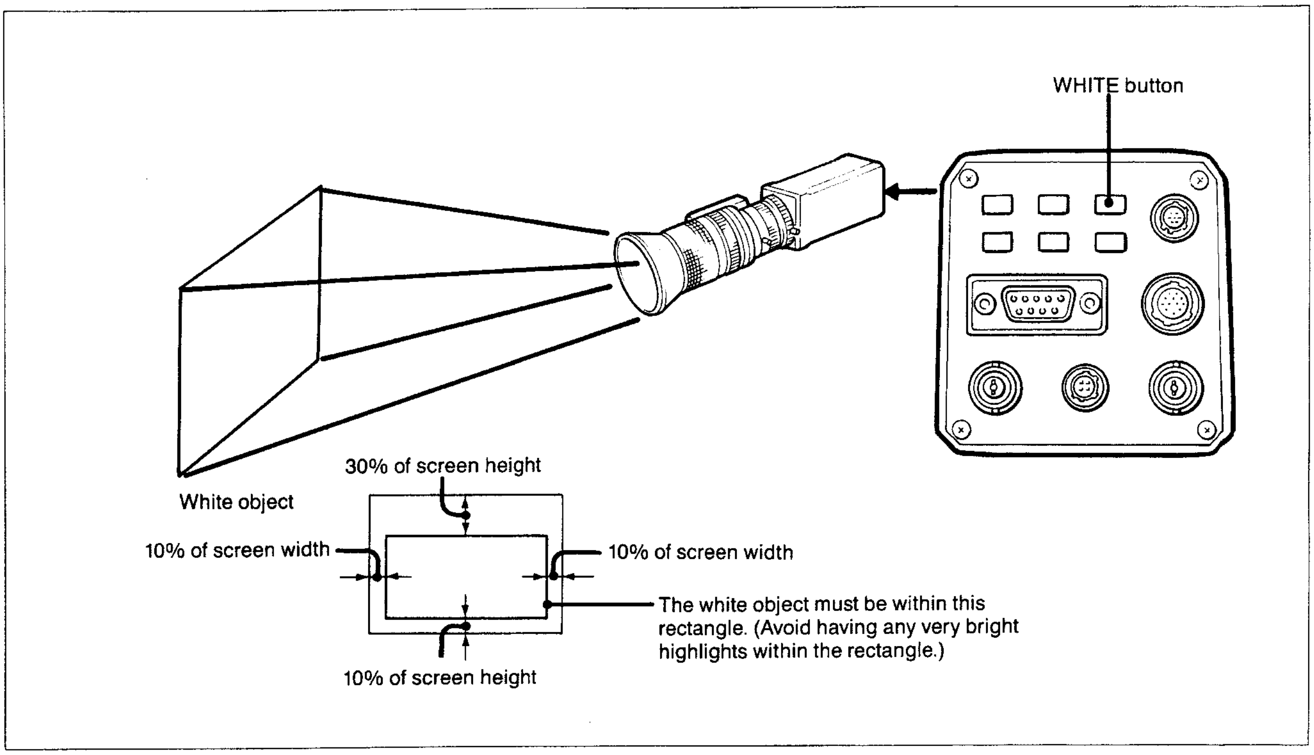
Black balance adjustment errors

If black balance adjustment has not been done successfully, either of the following two error messages appears on the monitor screen for about 4 seconds. Take the necessary action.

Error message	Meaning and Remedy
BLACK: NG	The camera failed to adjust the black balance for some reason. Press the BLACK button again. **Note** If this message appears again and again, it is necessary to have the internal circuitry checked by qualified personnel.
BLACK: NG IRIS CLOSE ?	The camera was not able to adjust the black balance because of the light entering the lens. • If you were controlling the lens iris manually, close the iris and then press the BLACK button again. • If you are using a microscope adaptor without lens iris closing capability, see to it no light enters the lens and then press the BLACK button again.

1-12. ADJUSTING THE WHITE BALANCE

Each time the lighting condition changes, you have to adjust the camera for white balance so that optimal color reproduction is obtained.



The white object must be within this rectangle. (Avoid having any very bright highlights within the rectangle.)

1 Using the menu, make the following settings for color temperature and white balance adjustment mode (see page 1-16):

C. TEMP: 3200K or 5600K (depending on the lighting condition)
WHT.BAL: AUTO

2 Display the camera picture on the monitor screen.

- If the color bar signal is displayed on the screen, press the BARS button to make it disappear.
- If the menu is displayed on the screen, press the MENU button to make it disappear.

3 Set the lens iris control as follows:

- For automatic iris control when using a lens with automatic iris control capability.
- For an appropriate value of iris opening when using a manual iris control lens.

4 Place a white object in the same light as that which is falling on the subject to be shot, then point the camera at that object and zoom the lens.

- The white object can be a piece of white paper or cloth, a white wall, or the like.
- The requirements of the white area for the adjustment are as indicated in the above figure.
- Avoid having any very bright highlights in the screen.

5 Press the WHITE button.
Automatical white adjustment begins and is accomplished in several seconds. The "WHITE : OK" message appears in the monitor screen. The adjusted white level is automatically stored in memory, and will be preserved for at least 10 years even if the power of the camera is turned off.

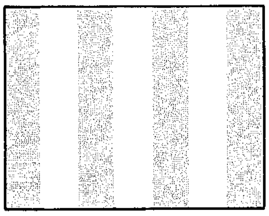
White balance adjustment errors

If white balance adjustment has not been done successfully, one of the following error messages appears on the monitor screen for about 4 seconds. Take the necessary action.

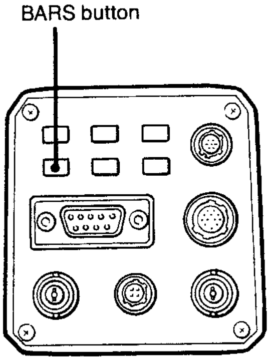
Error message	Meaning and Remedy
WHITE: NG LEVEL: LOW	The video level was too low. Take one or more of the following actions and then press the WHITE button again. • Make the illumination brighter. • Widen the iris opening. • Increase the video gain.
WHITE: NG LEVEL; ???	The camera failed to adjust the white balance. Take one or both of the following actions and then try again. • Get any very bright highlights out of the screen. • Adjust the illumination. **Note** If this message appears again and again, it is necessary to have the internal circuitry checked by qualified personnel.
WHITE: NG C.TEMP: LOW	The color temperature was too low. Change the C.TEMP setting in the menu to 5600K and try again.
WHITE: NG C.TEMP: HIGH	The color temperature was too high. Change the C.TEMP setting in the menu to 3200K and try again.
WHITE: MANU	The current WHT.BAL setting in the menu is MANU. Change the WHT.BAL setting to AUTO.

1-13. ADJUSTING THE VIDEO MONITOR

You can use the camera's color bar signal output to adjust the video monitor for optimal color reproduction.



Color bars signal displayed on the monitor screen in monocolor mode for blue



1. Press the BARS button.
   The camera outputs the color bar signal to the monitor.

2. Set the monitor for monocolor mode for blue.

3. Adjust the chroma and phase controls on the monitor so that all four blue bars are at the same brightness level.

4. Reset the monitor for normal (triplecolor) mode.

5. Press the BARS button again.
   The picture on the screen switches from color bars to that the camera is taking.
   - The iris of the lens is automatically closed when the camera begins to output the color bar signal, and remains so until when the camera stops outputting that signal. If you were manually controlling the lens iris before pressing the BARS button in step **1**, you need to reopen it after the video monitor adjustment because it otherwise will remain closed.

1-14. ADJUSTING THE PICTURE TONE ON A MULTI-CAMERA SYSTEM

When configuring a multi-camera system, it is necessary to adjust all cameras to prevent camera-to-camera variations in picture tone.

Supply the same sync signal to all cameras (see page 1-8), then make adjustments as instructed below.

When Connecting the Cameras to Video Equipment with Phase Indication Capability

When the cameras are connected to a special effect generator, a chroma keyer or other video equipment having a phase indication capability, the basic adjustment procedure is as follows.

1 Activate the phase indication capability of the connected video equipment.

2 Adjust the horizontal phase using the H. PHASE function of the menu (see page 1-20).

3 Adjust the subcarrier phase.
First make a coarse adjustment for 0° or 180° using the 0/180 item of the menu, then a fine adjustment using the SC item. (See page 1-20.)

For more details, refer to the instructions manual for the connected video equipment with phase indication capability.

When Not Connecting the Cameras to Video Equipment with Phase Indication Capability

Use one of the cameras as reference camera and adjust the other cameras to the reference camera one by one.

1 Adjust the horizontal phase.
Using the H. PHASE function of the menu (see page 1-20), make adjustment so that the reference video signal and the output signal have the same horizontal sync phase. Use a waveform monitor or an oscilloscope to check the phase.

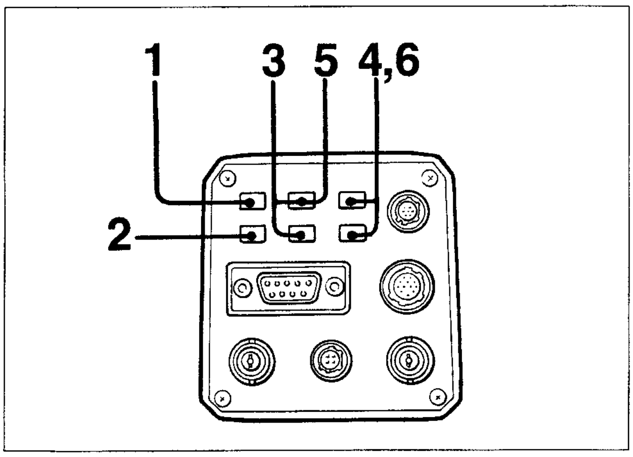
2 Adjust the subcarrier phase.
First make a coarse adjustment for 0° or 180° using the 0/180 item of the menu, then make adjustment using the SC item so that the reference video signal and the output video signal have the same subcarrier phase. (See page 1-20.)
- Use a vectorscope or the wiping capability of a special effect generator so that the reference camera picture and the picture from the camera to be adjusted are both displayed on the monitor screen in vertical or horizontal juxtaposition.

1-15. PROCEDURE FOR CHANGING SETTINGS

You can easily change any camera operational settings through simple button manipulation while seeing the menu display on the monitor screen.
This section describes how to change settings by taking up video gain and white balance as examples, which are two of the adjustment items requiring a change of setting most frequently. All the items whose settings can be changed using the menu are listed up on page 1-18.

Example 1: Changing the Video Gain Setting

When shooting in very low light, fully opening the lens iris may not be sufficient to produce acceptably bright pictures. In such case, you can obtain pictures of adequate brightness by raising the video gain setting.



1 Press the MENU button.
The menu display appears on the monitor screen.

Selected-line indicator

```
▮ GAIN       STEP
    STEP     00DB
  C.TEMP     3200K
  WHT.BAL    AUTO
    R.GAIN   +00
    B.GAIN   +00
  CCD IRIS   OFF
  SHUTTER    OFF
```

Menu display (example)

2 Press the DISPLAY button.
Each press of this button switches the number of display lines between 1 and 8.

3 Using the FUNCTION UP and FUNCTION DOWN buttons, select the line showing the desired item.
The FUNCTION UP button scrolls the menu display upwards, and FUNCTION DOWN, downwards.
In this example, select the line showing the GAIN item.

```
▮ GAIN       STEP
    STEP     00DB
```

4 Using the DATA UP and DATA DOWN buttons, select the desired setting.
AGC: for automatical control of video gain.
This selection means the end of the procedure.
STEP: for setting the video gain to the desired level.
Go to step **5**.

```
▮ GAIN       STEP
    STEP     00DB
```

5 Using the FUNCTION UP button, select the cursor on the line showing the STEP item.

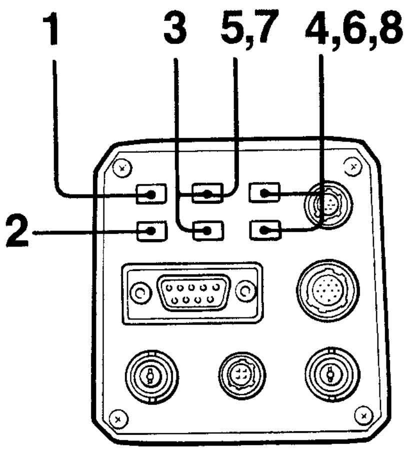
```
▮   STEP     00DB
```

6 Using the DATA UP and DATA DOWN buttons, set the gain to the desired level.
You can set the gain to any value in the range of 0 to 18.

```
▮   STEP     (00 to 18) DB
```

Example 2: Changing the White Balance Setting

The procedure for manual adjustment of white balance is as follows. For automatical adjustment, see page 1-13.



1 Press the MENU button.
The menu display appears on the monitor screen.

```
Selected-line indicator

▮  GAIN        STEP
     STEP      00DB
   C.TEMP      3200K
   WHT.BAL     AUTO
     R.GAIN    +00
     B.GAIN    +00
   CCD IRIS    OFF
   SHUTTER     OFF
```

Menu display (example)

2 Press the DISPLAY button.
Each press of this button switches the number of display lines between 1 and 8.

3 Using the FUNCTION UP and FUNCTION DOWN buttons, select the line showing desired item.
In this example, position the cursor on the line showing the WHT.BAL item.

```
▮  WHT.BAL     AUTO
     R.GAIN    +00
     B.GAIN    +00
```

4 Using the DATA UP and DATA DOWN buttons, select MANU.
AUTO: for automatical adjustment. You can now use the automatical white balancing function. (See page 1-13.)
MANU: for manual adjustment. Go to step **5**.

```
▮  WHT.BAL     AUTO
     R.GAIN    +00
     B.GAIN    +00
```

5 Using the FUNCTION UP button, select the line showing the R.GAIN item.

```
▮    R.GAIN    +00
     B.GAIN    +00
```

6 Using the DATA UP and DATA DOWN buttons, set the red gain to the desired level.
You can set the gain to any value in the range of −99 to +99.

```
▮    R.GAIN    (−99 to +99)
     B.GAIN    +00
```

7 Using the FUNCTION UP button, select the line showing the B.GAIN item.

```
▮    B.GAIN    +00
```

8 Using the DATA UP and DATA DOWN button, set the blue gain to the desired level.
You can set the gain to any value in the range of −99 to +99.

```
▮    B.GAIN    (−99 to +99)
```

Basic principles of the operation to change settings

As is understandable from the two examples given above, the basic principle of the operation to change settings can be summarized as follows.

1. Press the MENU button to display the menu.
2. Select a menu item with the FUNCTION UP and FUNCTION DOWN buttons.
3. Select the desired setting with the DATA UP and DATA DOWN buttons.

Selected-line indicator

```
▮  GAIN        STEP
     STEP      00DB
   C.TEMP      3200K
   WHT.BAL     AUTO
     R.GAIN    +00
     B.GAIN    +00
   CCD IRIS    OFF
   SHUTTER     OFF
```

1-16. SETTINGS THAT CAN BE CHANGED (LIST OF MENU ITEMS)

Menu item	Setting or setting range	Initial setting
GAIN (video gain)	AGC or STEP	STEP
STEP	0 to 18 dB (Change of setting is enabled by selection of STEP on GAIN.)	0 dB
C.TEMP (color temperature)	3200K or 5600K	3200K
WHT.BAL (white balance)	AUTO or MANU	AUTO
R.GAIN*1 B.GAIN*1	−99 to +99 −99 to +99 (Change of setting is enabled by selection of MANU on WHT.BAL.)	+00 +00
CCD IRIS	ON or OFF	OFF
SHUTTER (electronic shutter)	OFF, STEP, or MANU For settings, see page 1-20.	OFF
STEP	FL, or 1/125 to 1/10000 sec. (Change of setting is enabled by selection of STEP on SHUTTER.)	FL
MANU	Functions only when CCD IRIS is set to OFF. (Change of setting is enabled by selection of MANU on SHUTTER.)	OFF
M.PED*1 (master pedestal)	−99 to +99	+00
DTL (detail)	−99 to +99	+00
H.PHASE*1 (horizontal phase)	−99 to +99 (Change of setting is enabled if a sync signal is input to GEN LOCK connector.)	+00
SC*1 (subcarrier phase)	−99 to +99	+00
0/180	0 or 180 (Change of setting is enabled if a sync signal is input to GEN LOCK connector.)	0
GAMMA (gamma compensation)	ON or OFF	ON
G.SYNC (G with sync)	ON or OFF	ON
FLD/FRM (field/frame)	FLD or FRM	FLD
D-SUB (RGB/SYNC output signal format)	YC or VBS	VBS

*1 To restore the initial, or central, setting (+00) for this item, press the DATA UP and DATA DOWN buttons simultaneously.

The following are the descriptions of the menu items and their settings.

GAIN (video gain)

AGC: for automatical control of video gain.
The gain of the video signal circuitry is automatically controlled depending on the brightness of the subject. This function is useful when the illuminance of the subject varies more or less dramatically.

STEP: for setting the video gain to the desired level.
Use this function for shooting in so dark places that fully opening the lens iris can still not give an acceptably bright image. The gain level can be set in the range of 0 to 18 dB in units of 1 dB.

C.TEMP (color temperature)

3200K: for indoor shooting.
5600K: for outdoor shooting.

WHT.BAL (white balance)

AUTO: for automatical adjustment of white balance described on page 1-13.

MANU: for manual adjustment of white balance. Both red gain (R.GAIN) and blue gain (B: GAIN) are adjustable.

CCD IRIS

ON: When an excessive amount of light passes through the lens, this function increases the shutter speed automatically to nearly the same effect that the lens iris is narrowed 3 stops down.
In microscope shootings using a microscope adaptor without incident light control capability, for example, an amount of incident light which is not too much for a human eye will often be so for a video camera. With CCD IRIS set to ON, an excessive amount of incident light is automatically decreased to an appropriate level for the video camera. In another example, if there is a very bright object (such as snow, or sea water reflecting sunlight) within the range of view of the lens, the incident light is automatically decreased to a certain level if of course the lens has an automatical iris control capability. Also in such case, CCD IRIS is useful to give a further decrease of incident light.

OFF: for shooting in normal lighting condition. Also use this setting when:

- The picture flickers on the monitor screen. This may occur when using the DXC-930 * with lighting power of 50 Hz or the DXC-930P, of 60 Hz. In such case, set CCD IRIS to OFF and shutter speed to FL. (See the next page.)
- The camera is used under fluorescent light. This may cause slow variations in color to the picture. If the degree of color variations is unacceptable, set CCD IRIS to OFF.

SHUTTER (electronic shutter)

The electronic shutter allows you to obtain blur-free pictures of a fast moving subject, and if used combinedly with a frame memory device, adequately bright pictures of low-illuminated subjects.
Note that the SHUTTER function is effective only when CCD IRIS is set to OFF.

OFF: for inactivating the electronic shutter.

STEP: for setting the shutter speed to one of the following eight: FL, 1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000, and 1/10000 sec.
FL gives flickerless pictures. When using the DXC-930* with lighting power of 50 Hz or the DXC-930P, of 60 Hz, setting SHUTTER to FL gives you flickerless pictures even under fluorescent light.

MANU: for adjusting the shutter speed in units of frame or horizontal scan cycle time (H) in the following rage.

DXC-930*:

In units of frame	OFF	In units of H
In FLD mode*2: 255 to 001		260/525 to 1/525
In FRM mode*2: 256 to 002		

DXC-930P:

In units of frame	OFF	In units of H
In FLD mode*2: 255 to 001		310/625 to 1/625
In FRM mode*2: 256 to 002		

*2 About FLD and FRM modes, see page 1-20.

Adjusting the shutter speed in units of frame: for example, if the setting is 050 (equivalent to about 1.7 seconds with DXC-930* and 2 seconds with DXC-930P), the whole amount of video signal accumulated during this set time will be output in the form of one complete picture (or one still frame) at intervals of about 1.7 seconds or 2 seconds depending on the camera. These pictures, which contain 50 frames of video information, are much brighter than normal one-frame pictures. Therefore, this mode of setting the shutter speed is very useful for shooting a low-illuminance subject in a dark place. You can make timing pulses for taking out still pictures be output from the RGB/SYNC connector by changing the setting of the internal SYNC switch (see the figure). You can use this function advantageously for image processing or image analysis by synchronizing an external frame memory with the timing pulses to take out still pictures.

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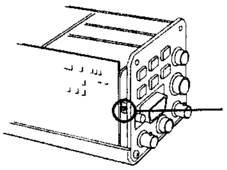
* The DXC-930 can be replaced with the DXC-960MD.

Adjusting the shutter speed in units of H: with the DXC-930*, 1 H is 63.56 μsec. and with the DXC-930P, 64.0 μsec.
This function reduces a noise which appears as horizontal stripes when shooting computer screen displays for example (Clear Scan function). While checking the image on the monitor screen, you can make adjustment using the DATA UP and DATA DOWN buttons to obtain a picture showing the least possible horizontal stripe noise.

Calculating shutter speeds from SHUTTER MANU settings

Example 1: When the frame setting is 005:
DXC-930*: 005 × 1/30 sec. = 0.1666 sec.
DXC-930P: 005 × 1/25 sec. = 0.2 sec.

Example 2: When the H setting is 250/525 (DXC-930*) or 250/625 (DXC-930P):
DXC-930*: 250 × 63.56 μsec. + 34.78 μsec. (constant) = 15924.78 μsec. = approx. 0.016 sec.
DXC-930P: 250 × 64 μsec. + 35.6 μsec. (constant) = 16035.6 μsec. = approx. 0.016 sec.



SYNC switch
For details, refer to SECTION 2 TECHNICAL INFORMATION.

Note

When SHUTTER is set to MANU, do not use the AGC function or the white balancing function.

M.PED (master pedestal)

Normally set this to +00.
When the black parts of the picture are too dull, you can make them look sharp by adjusting the the master black level. Use of a waveform monitor will make the adjustment easier.

DTL (detail)

You can use the DTL function to adjust the sharpness of the outlines of objects in the reproduced picture.
A higher set value makes the picture look sharper with more detail on the image outlines, and a lower value makes the picture look softer with less detail.

H.PHASE (horizontal phase)

When an external reference sync signal to gen-lock the camera is input to the GEN LOCK connector, the camera operates at the frequency of that reference signal. You can use this H.PHASE function to perfectly synchronize the camera operation with the reference signal to the level of horizontal phase.

SC and 0/180 (subcarrier phase)

When gen-locking the camera, use the SC and 1/180 functions to adjust the subcarrier phase.
First use 1/180 for coarse adjustment and then SC for fine adjustment.

GAMMA (gamma compensation)

ON: for normal use of the camera. The image reproduction characteristics of the monitor CRT are properly compensated for automatically to give pictures of natural tones.

OFF: for producing pictures convenient for image processing or image analysis. The video signal is output linearly from the CCD without gamma compensation.

G.SYNC (G with sync)

ON: for using a video monitor without sync input connector. A sync-added G signal can be output from the RGB/SYNC connector of the camera.

OFF: normal setting. The G signal is output from the RGB/SYNC without sync signal.

FLD/FRM (field/frame)

FLD: for shooting fast moving subjects. The CCD accumulates and outputs the charges field by field to give pictures showing a minimum blur even when the subject is fast moving.

FRM: for producing pictures with the highest possible vertical resolution. The CCD accumulates and outputs the charges frame by frame. Select this setting when using the camera with measuring instruments, image processing or image analysis systems equipped with a frame memory, or still image processing systems.

D-SUB (RGB/SYNC output signal format)

This allows you to select the output signal format for the RGB/SYNC connector.

Y/C: for separated Y and C signals.

VBS: for composite video signal.

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* The DXC-930 can be replaced with the DXC-960MD.

1-17. SPECIFICATIONS

Imager	½-inch CCD, interline transfer type
Effective picture elements	DXC-930*: 768 (H) × 494 (V) DXC-930P: 768 (H) × 494 (V)
Synchronization	Internal/external (VBS) synchronization, automatical switching
Signal format	DXC-930*: EIA standard format DXC-930P: PAL format
Horizontal scanning	DXC-930*: 525 lines, 2:1 interlace DXC-930P: 625 lines, 2:1 interlace
Scanning frequency	DXC-930*: Horizontal: 15.734 kHz Vertical: 59.94 Hz DXC-930P: Horizontal: 15.625 kHz Vertical: 50 Hz
Horizontal resolution	720 TV lines
Sensitivity	DXC-930*: 2,000 lux (f/5.6, 3200 K) DXC-930P: 2,000 lux (f/5, 3200 K)
Signal-to-noise ratio	DXC-930*: 58 dB DXC-930P: 56 dB
Lens mount	½-inch bayonet type
Gain control	• Automatic • Manual: 0 to 18 dB in units of 1 dB
White balancing	• Automatical • Manual: red gain and blue gain adjustable indivudually
CCD iris control	On/off switchable
Electronic shutter speed	Adjustable in the range of 1/10,000 to about 8.5 sec (DXC-930*) or 10 sec (DXC-930P)
Gamma compensation	On/off switchable
Charge accumulation mode	Switchable between field and frame modes
Output signals	Video: Composite: 1.0 Vp-p, 75 ohms R/G/B: 0.7 Vp-p, 75 ohms Y: 1.0 Vp-p, 75 ohms C: Same level as VBS chroma, 75 ohms Sync: 2.0 Vp-p, 75 ohms
Input/output connectors	VIDEO OUT: BNC, 75 ohms, unbalanced GEN LOCK: BNC, 75 ohms, unbalanced DC IN/REMOTE: 12-pin RGB/SYNC: D-SUB 9-pin LENS: 9-pin, for ⅔-inch lens CCU: 20-pin
Power supply	12 V DC
Power consumption	7.8 W
Operating temperature	−5 to +45 °C (23 to 113°F)
Storage temperature	−20 to +60°C (−4 to +140°F)
Demensions (w/h/p)	70 × 72 × 123.5 mm (2⅞ × 2⅞ × 4⅞ inches)
Weight	About 670 g (1 lb 8 oz)

Design and specifications are subject to change without notice.

* The DXC-930 can be replaced with the DXC-960MD.

1-18. RECOMMENDED EQUIPMENT

Lenses

VCL-707BXM (automatic zoom, 7 ×)
VCL-712BXEA (automatic zoom, 12 ×)
VCL-716BXEA (automatic zoom, 16 ×)

Camera adaptors and camera remote control units

CMA-D1 camera adaptor (for DXC-930*)
CMA-D1CE camera adaptor (for DXC-930P)
RM-930 camera remote control unit (with CCMC cable)

Microscope adaptors and couplers

MVA-40 microscope adaptor (with automatic dimmer)
MVA-41 microscope adaptor
MVAC-33-O microscope coupler (for Olympus microscopes)
MVAC-33-N microscope coupler (for Nikon microscopes)

Camera control units

CCU-M7/M7P
CCU-M3/M3P

Power supply cables

CCDC series (length: 10 m (32 ft) or 25 m (82 ft))
CCDCA series (length: 50 m (164 ft) or 100 m (328 ft))

CCU connection cables

CCTQ-3RGB (for CCU-M3/M3P, with CCQQ-1 extension connector, length: 3 m (9 ft 10 in))
CCTZ-3RGB (for CCU-M7/M7P, R/G/B transmission, with CCZZ-1 extension connector, length: 3 m (9 ft 10 in))
CCTZ-3YC (for CCU-M7/M7P, Y/C transmission, with CCZZ-1 extension connector, length: 3 m (9 ft 10 in))

Extension cables for CCU connection

CCQ-AM (for CCU-M3/M3P, max. length: 100 m (328 ft))
CCZA (for CCU-M7/M7P, max. length: 300 m (984 ft))

Camera cables

CCXC-9DB (with a D-SUB 9-pin connector at one end, and five BNC connectors at the other)
CCXC-9DD (with a D-SUB 9-pin connector at each end)
CCMC-9DS (with a D-SUB 9-pin connector, and four BNC and one S- video connectors at the other)

1-19. GLOSSARY

Some of the technical terms used most often in video camera technology and operation are explained hereunder.

Bayonet mount

A type of lens mount. The lens can be inserted into the lens mount and fixed in place quickly by rotating the mount lever.

Black balancing

To adjust a video camera while closing the lens iris completely so that the portions of the camera signal at the black level represent absolute black.
The pedestal level is adjusted so that the black levels of the R, G and B signals are equal. See "Pedestal level."

CCD

Abbreviation of Charge-Coupled Device. A semiconductor imaging device to convert input light levels into electrical charges, which are once stored and then output in the form of electrical voltage variations.

Color bar signal

A test signal to be displayed as vertical bars of different colors on a color video monitor. Used to check chrominance functions of television and video equipment, for example to check hue and saturation.

Color temperature

The temperature in Kelvins (K) to represent the color of a light source, determined by heating a perfectly black body until its color matches that of the light source. Color temperature is higher when the color is bluish and lower when reddish.

Color temperature conversion

Conversion of the color temperature of a light source to a particular reference color temperature (3200K for this camera, for example). See "Color temperature."

Field

One-half of a complete television or video camera picture (or frame) containing all of the odd or even scanning lines of the picture. See "Frame".

Frame

A single complete television or video camera picture consisting of two interlaced fields. See "Field."

Gen-lock

Abbreviation of Generator Lock. Locking the internal sync generator of a camera with an external reference sync signal.

* The DXC-930 can be replaced with the DXC-960MD.

Horizontal resolution

The capability of a camera to resolve detail in a horizontal direction. It is usually expressed as the number of vertical lines which can be distinguished on the monitor screen when shooting a test chart.

Iris

A diaphragm which controls the amount of light passing through the lens.

Pedestal level

Reference video level. Since signals close to the reference black level of the video signal contain noise, the pedestal level is set at about 10% above the blanking level.

Shutter speed

The length of time a shutter remains open. The faster the shutter speed, the less the shot image blurs but the darker it looks.

Subcarrier

The color information signal contained in a video signal. Its phase is for hue and its amplitude, color saturation.

VBS

Abbreviation of Video, Burst and Sync. A composite signal consisting of video signal, burst signal and sync signal.

Video gain

Amount of amplification for video signals, expressed in decibels (dB).

White balancing

In the light of a particular color temperature, to adjust the white levels of the R, G and B signals of a video camera so that any white subject shot in that light is reproduced as a truly white image. See "Color temperature."

SECTION 2
TECHNICAL INFORMATION

2-1. SWITCHES SETTING ON THE BOARD

AT-69 BOARD

- SW1 (OPE/ADJ)
  When adjusting the electronic controls, the S1 switch on the AT-69 board set to "ADJ" position.

  Normally set to "OPE" position.

- SW2 (PT/ZF)
  Normally set to "ZF" position.
  When using the special system, for example, PAN ans TILT control by the Camera Control Unit, set to "PT" position.

CN-579 BOARD

- SW7 (SYNC/SG1)
  Normally set to "SYNC" position.

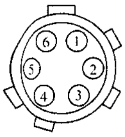
SYNC: The sychronizing signal outputs from 9P D-SUB connector.

SG1: The shutter speed can be set in units of frame. Setting this mode is very effective for shooting a low luminance subject in a dark place. Because a video signal is stored during a frame period, a brighter video signal can be obtained.
And the image processing or image analysis can be performed by synchronizing an external frame memory with the timing pulses and memorizing a video signal.
As a result, the pulse synchronized with the read timing pulse is output.

2-2. CONNECTOR/CABLE

2-2-1. Connector Input/Output Signals

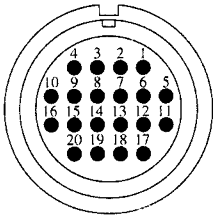
LENS (6P, FEMALE)



(EXT VIEW)

PIN NO.	SIGNAL	SPECIFICATION
1	NC	
2	NC	
3	UNREG (G)	
4	IRIS CLOSE	5 V (COMPULSORY AUTO)
5	IRIS CONT	2.6 V (CLOSE)~7.6 V (OPEN)
6	UNREG (+)	+12 V

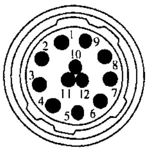
CCU, (20P MALE)



(EXT VIEW)

PIN NO.	SIGNAL	SPECIFICATION
1	UNREG OUT (+)	+12 V
2	UNREG OUT (G)	
3	VBS OUT (X)	1 V p-p
4	(G)	
5	R (X)	0.7 V p-p
6	R (G)	
7	G (X)	0.7 V p-p
8	G (G)	
9	B (X)	0.7 V p-p
10	B (G)	
11	Y (X)	1 V p-p
12	Y (G)	
13	C (X)	NTSC: 0.28 V p-p PAL: 0.3 V p-p (BURST)
14	C (G)	
15	GENLOCK (CCU) IN (X)	1V p-p
16	GENLOCK (CCU) IN (G)	
17	SERIAL DATA IN (X)	
18	SERIAL DATA IN (G)	
19	SENSE (+)	
20	SENSE (-)	

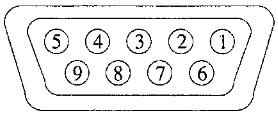
DC IN/REMOTE (12P, MALE)



(EXT VIEW)

PIN NO.	SIGNAL	SPECIFICATION
1	UNREG (G)	
2	UNREG (+)	+12 V
3	VBS (G)	
4	VBS (+)	
5	FOCUS CONT	0 to 5 V
6	IRIS CONT	0 to 5 V
7	CAM/REM CTL	CAM: 5 V REM: 0 V
8	ZOOM CONT	0 to 5 V
9	MODE	
10	UNREG (G)	
11	UNREG (+)	+12 V
12	IRIS A/M	AUTO: 5 V MANU: 0 V

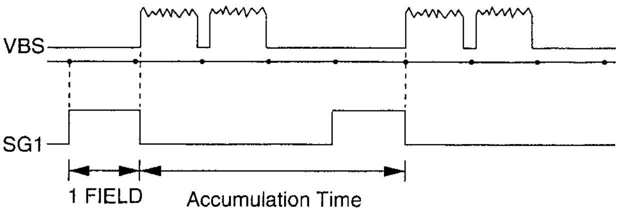
D-SUB (9P)



(EXT VIEW)

PIN NO.	SIGNAL	SPECIFICATION
1	VBS (G)	
2	R/G/B (G)	
3	R (X)	0.7 V p-p (75 ohms)
4	G (X)	0.7 V p-p (75 ohms)
5	B (X)	0.7 V p-p (75 ohms)
6	VBS/Y (X)	1 V p-p (75 ohms)
7	SYNC (X) *	2 V p-p (75 ohms)
8	SYNC (G)	
9	C (X) / —	

* SG1 output waveform at pin 7 is shown when SYNC switch SW7/CN board is set to SG1 (Output Timing Pulse) position. The signal is only output during long-time accumulation mode.



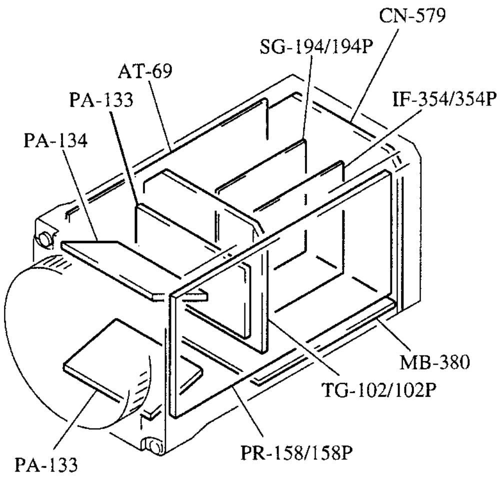
2-2-2. Connector

Connection made with the connector panels during installation or service, should be made with the connectors/complete cable assemblies specified in the following list, or equipment parts;

Connector function	Parts No. , and name of connector with cable
LENS (6P, FEMALE)	1-560-078-41 PLUG, 6P MALE
CCU (20P, MALE)	1-691-747-11 PLUG, 20P FEMALE
DC IN/REMOTE (12P, MALE)	1-562-356-11 PLUG, 12P FEMALE
D SUB (9P)	• 1-566-354-11 PLUG, DSUB 9P MALE • JAE DEU-9PF-F0 equality
VIDEO OUT GENLOCK (BNC)	1-560-069-11 PLUG, BNC

SECTION 3
SERVICE INFORMATION

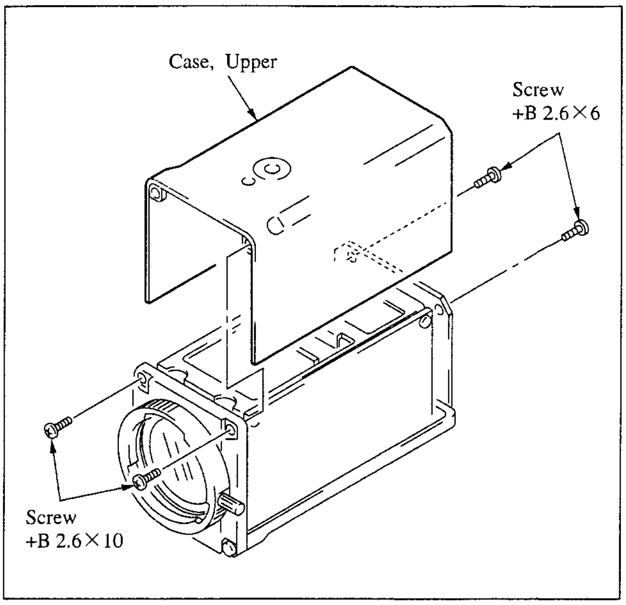
3-1. BOARD LAYOUT



CN-579
SG-194/194P
AT-69
PA-133
IF-354/354P
PA-134
MB-380
TG-102/102P
PA-133
PR-158/158P

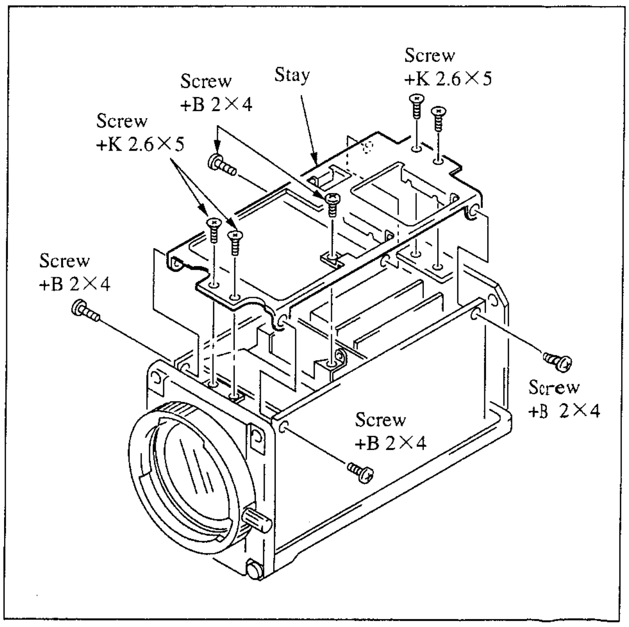
3-2. REMOVAL OF CABINET

1. Remove the four screws (+B 2.6×10, +B 2.6×6) and then remove the upper case.



Case, Upper
Screw
+B 2.6×6
Screw
+B 2.6×10

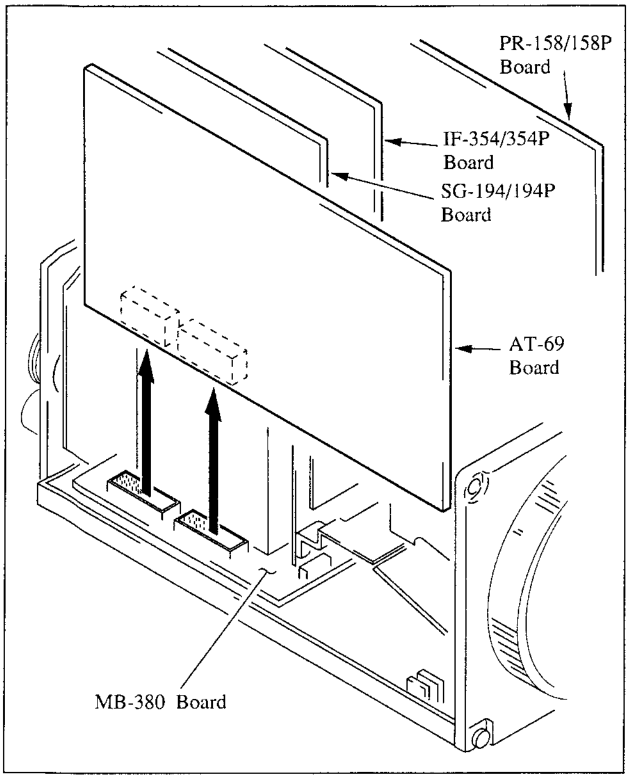
2. Remove the nine screws (+B 2×4, +K 2×4) and then remove the stay.



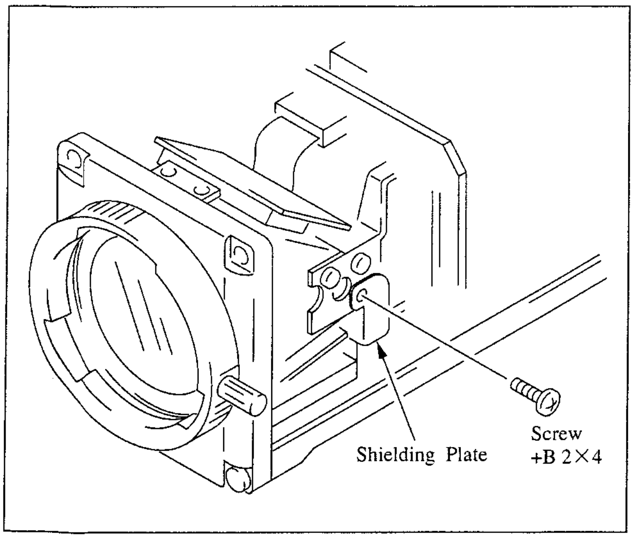
Screw
+B 2×4
Stay
Screw
+K 2.6×5
Screw
+K 2.6×5
Screw
+B 2×4
Screw
+B 2×4
Screw
+B 2×4

3-3. REMOVAL OF CCD BLOCK

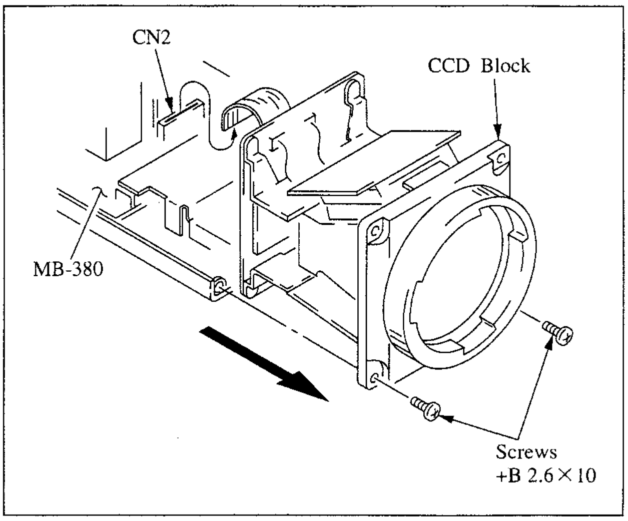
1. Remove the upper case and stay, referring to the Section 3-2 "REMOVAL OF CABINET".
2. Pull out the PR-158/158P, IF-354/IF-354P, SG-194/194P, and AT-69 boards from the MB-380 board.


PR-158/158P Board
IF-354/354P Board
SG-194/194P Board
AT-69 Board
MB-380 Board

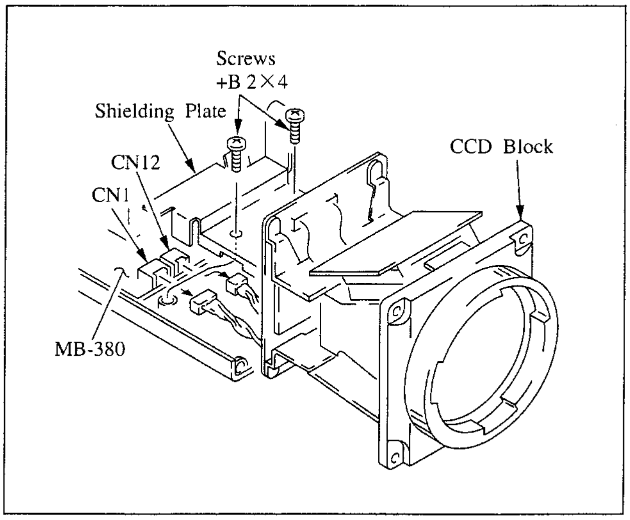
3. Remove the screw (+B 2×4).


Shielding Plate
Screw
+B 2×4

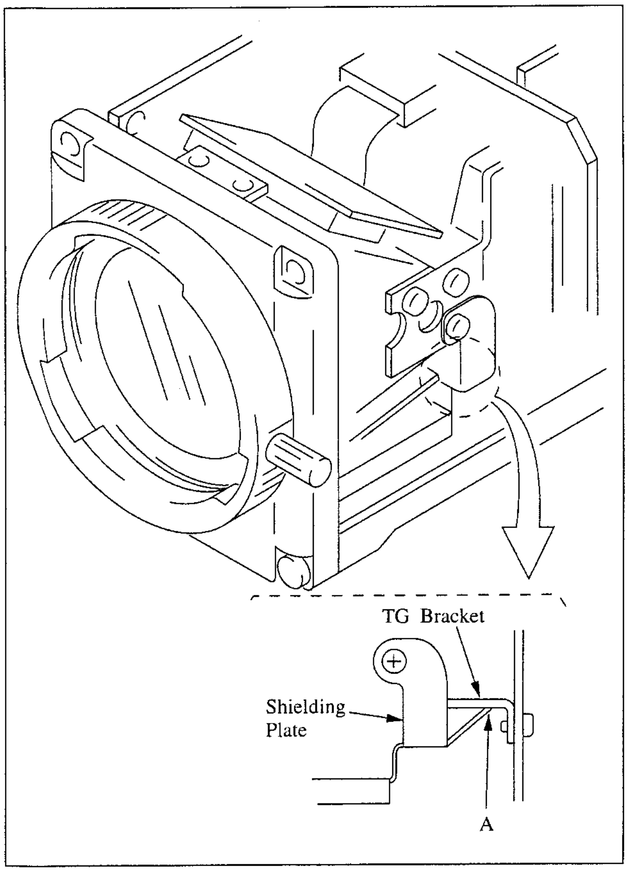
4. Remove the two screws (+B 2.6×10) and pull out the CCD block from the main body.
5. Disconnect the flexible board from the CN2 on the MB-380 board.


CN2
CCD Block
MB-380
Screws
+B 2.6×10

6. Remove the two screws (+B 2×4) and then remove the shielding plate.
Disconnect the harness from the CN1 and CN12 on the MB-380 board, and then remove the CCD block.

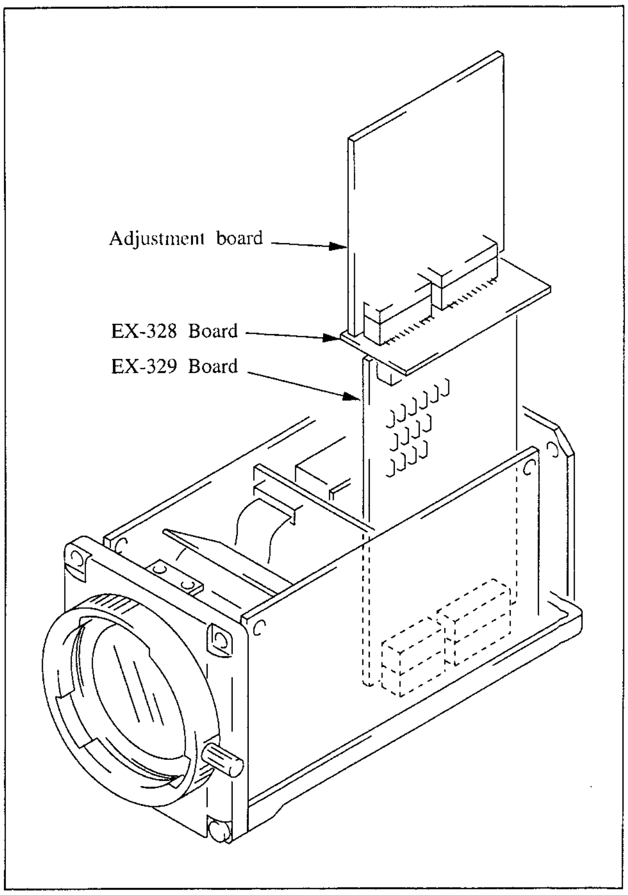

Screws
+B 2×4
Shielding Plate
CN12
CN1
CCD Block
MB-380

<Precautions on mounting the shielding plate>
When installing the shielding plate after replacement of the CCD block, confirm the TG blacket touches a portion "A" of the sielding plate.

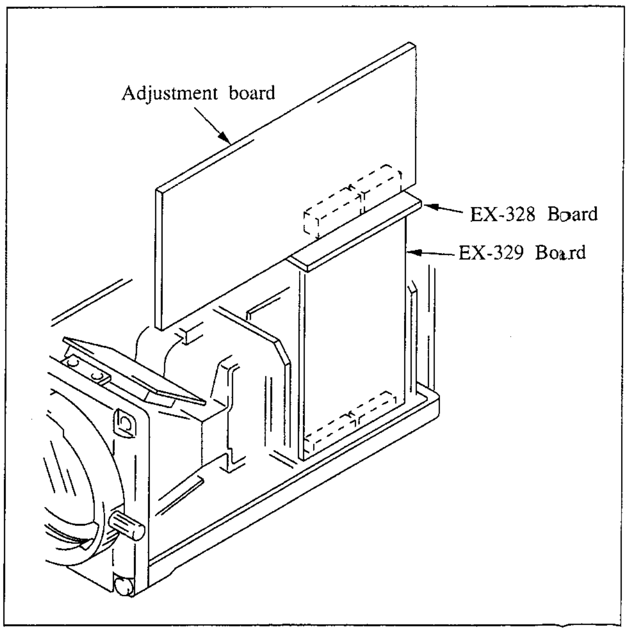

TG Bracket
Shielding Plate
A

3-4. HOW TO USE AN EXTENSION BOARD

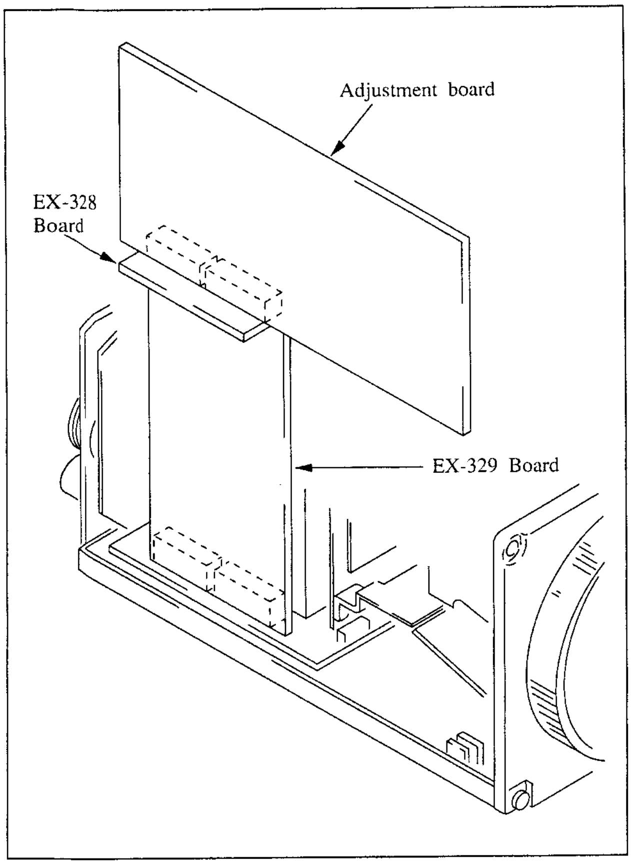
- In cases of the SG-194/194P board and the IF-354/354P board


Adjustment board
EX-328 Board
EX-329 Board

- In cases of the PR-158/158P board


Adjustment board
EX-328 Board
EX-329 Board

- In cases of the AT-69 board


Adjustment board
EX-328 Board
EX-329 Board

SECTION 4
CIRCUIT OPERATION DESCRIPTION

4-1. PA-133 AND PA-134 BOARDS

The PA-133 and PA-134 boards have a CCD imager and converts incident light into an electric signal. They also extract a photoelectrically converted video signal by CDS.

From the viewpoint of the structure in channel B, these boards are classified into two types because the signal lines of the CCD driving clock from the TG-102/102P board and the power differ in the draw-out direction. However, the two boards are much the same in circuit configuration.

The PA-133 board is used in channels R and G, and the PA-134 board in channel B.

The light separated into the three primary colors via an optical system is sent to CCD imager IC1 (ICX038AT-1) and converted into an electric signal. Photosensors are arranged on the surface of a CCD chip. The number of photosensors in the horizontal direction is 811, and that in the vertical direction is 508. 411,988 photosensors are arranged in total. The number of effective pixels is 768 in the horizontal direction and 494 in the vertical direction (379,392 in total).

The incident light is converted into an electric charge corresponding to the brightness of light in a photosensor block. The converted charge is read from the photosensor block to the transfer block and sent to the output block. The transfer block is classified into a vertical transfer block and horizontal transfer block. As shown in Fig. 1, 811 vertical transfer blocks are arranged in the vertical direction of the screen, and one horizontal transfer block in the horizontal direction of the screen (the uppermost part in Fig. 1). The charges converted in photosensors are transferred to the vertical transfer blocks adjacent to each photosensor for every field in the field read mode (every for frame in the frame read mode). The charges transferred to each vertical transfer block are vertically transferred in parallel using vertical transfer clocks V1 through V4 and sent sequentially to the horizontal transfer block. The horizontal transfer block transfers the charges horizontally using horizontal transfer clocks H1 and H2 (with frequency of 910 fH) and sends them to the output block. The charges are then output from pin 10 (CCD OUT) of IC1. The horizontal and vertical transfer clocks are sent from the TG-102/102P board.

The charge of an output signal from IC1 is converted into a voltage using a capacitor in the output block, then output. The output signal is input through buffer Q2 (emitter follower) to pins 2 and 3 of IC4 (IC3 for the PA-134 board) (CXA-1439M). IC4 is a CDS IC. Using a sampling pulse input to pins 5 (SHD) and 6 (SHP), IC4 performs the sample and hold operation and separates a signal. It then outputs a video signal from pin 8 as a CDS OUT signal. The output signal is input through A1 (FPC) and TG-102/102P board to the PR-158/158P board.

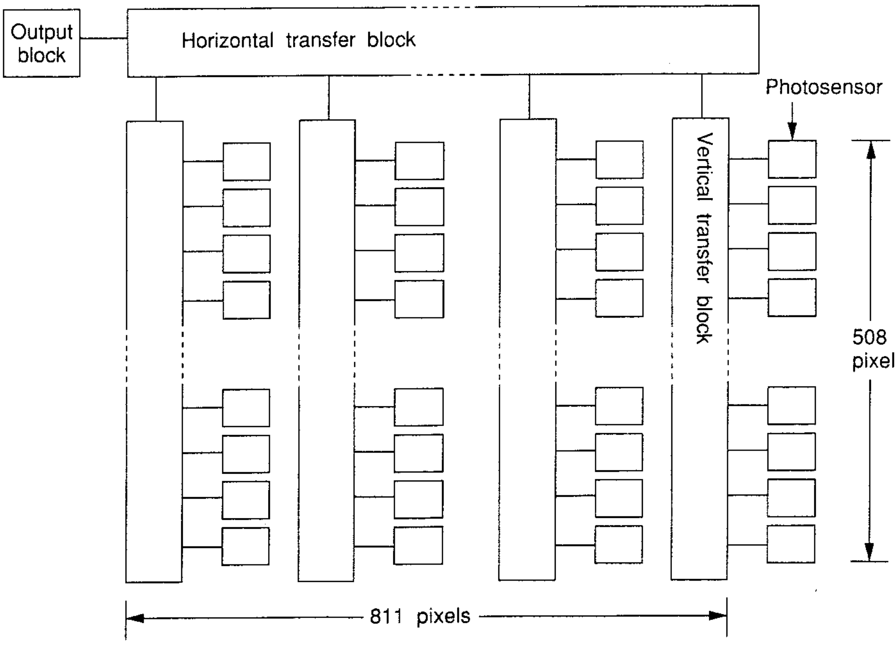


Fig. 1 Internal Structure of CCD

4-2. TG-102/102P BOARD

The TG-102/102P board consists of the circuits below.

- CCD drive timing signal generator
  .... IC2 and IC7 (CXD1256AR)
- CCD vertical transfer clock driver
  .... IC1, IC3 and IC6 (CXD1250N)
- CCD horizontal transfer clock driver (for channels R and B)
  .... IC8 (MC74AC04MR)
- 910 f_H phase operation circuit
  .... IC4 (SN74HC74ANS) and IC5 (SN74HC00ANS)
- LH1 negative power supply circuit
- RGL bias adjustment circuit
- V_{SUB} voltage supply circuit

(1) CCD drive timing signal generator

IC2 and IC7 (CXD1256AR) generate a clock, sample and hold pulse, and clamp pulse required for CCD driving by inputting a 1820 f_H clock and HD and VD pulses output from a sync signal generator. DXC-930/930P/960MD uses spatial offset technology for CCD adhesion. The phases of CCD driving clocks must be shifted 180 degrees between channels G, and R and B. Therefore, IC2 is used for channel G, and IC7 for channels R and B.

Each clock used in the DXC-930/930P/960MD is described below.

• CL:

910 f_H clock. Driven by IC4 and IC5 so that the phase is shifted 180 degrees between channels G, and R and B.

• H1 and H2:

Horizontal transfer block driving clock of CCD imager. Channel G is driven directly, and channels R and B drive IC8 as a driver.

• LH1:

Horizontal transfer block's final driving clock of CCD imager.

• XV1 to XV4, XSG1, and XSG1:

Vertical transfer block driving clock of CCD imager. These clocks are sent through drivers IC1, IC3, and IC6 to the PA-133 and PA-134 board.

• X_{SUB}:

Charge sweep pulse for electronic shutter control. This clock is sent through drivers IC1, IC3, and IC6 to the PA-133 and PA-134 board. The shutter speed is controlled by a microcomputer on the AT-69 board.

• RG: Reset gate pulse

• CLP1 and CLP2: Clamp pulse

• XSHP and XSHD:

Sample and hold pulse for signal separation

• WEN:

Write enable. Trigger pulse during low-speed shutter (long-time exposure).

(2) CCD vertical transfer clock driver

IC1, IC3, and IC6 (CXD1250N) drive XV1 through XV4, XSG1, XSG2, and XSUB clocks for CCD vertical transfer block driving. The DXC-930/930P/960MD is a three-tube CCD camera, so it requires vertical transfer clock drivers for channels R, G, and B. Therefore, IC1 is used for channel G, IC3 for channel B, and IC6 for channel R.

(3) CCD horizontal transfer clock driver (For channels R and B)

IC8 (MC74AC04MR) is a CCD horizontal transfer clock driver for channels R and B.

In the DXC-930/930P/960MD, a horizontal transfer clock in channel G is directly driven by TG IC because of its single channel. To drive channels R and B directly by TG IC, IC8 (MC74AC04MR) is mounted as a driver circuit because of its higher load. The H1 output signal of IC7 is thus inverted using IC8 to produce an H2 signal. Similarly, the H2 output signal of IC7 is inverted using IC8 to produce an H1 signal.

(4) 910 f_H phase operation circuit

The 910 f_H phase operation circuit consists of IC4 (SN74HC74ANS) and IC5 (SN74HC00ANS). This circuit is required to operate two TG IC circuits with phase difference of 180 degrees because the spatial offset technology described previously is used. IC5 has the corresponding function. Channel G must be delayed (180 degrees) in phase with respect to channels R and B. IC4 has the function in this case.

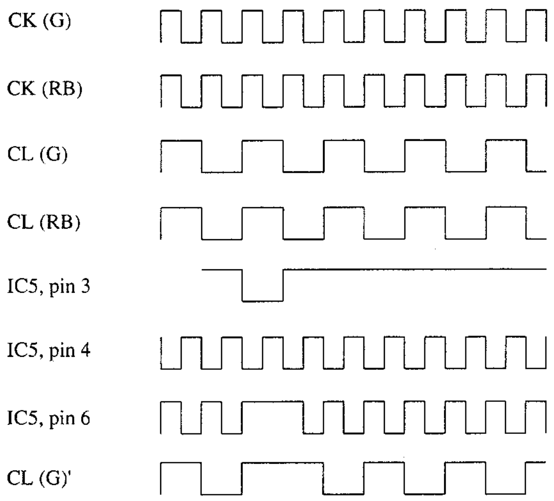
A 1820 f_H (≒ 28 MHz) clock with same phase is input to pins 64 (CK) of IC2 and IC7, and a 910 f_H (≒ 14 MHz) clock is output from pin 58 (CL). At that time, the CL clock in each channel is in-phase or opposite-phase. The CL clock is stabilized when it is in-phase or opposite-phase. As described previously, however, the CL clock in both channels must be opposite-phase. The CL clock must be forcibly set to the opposite phase by IC5 when it starts with in-phase during the power on sequence.

A CL (G) clock is input to pin 2 of IC5, and a CL (RB) clock is input to pin 1. The input clocks are then passed through a NAND gate. If the CL (G) and CL (RB) clocks are opposite-phase, the NAND gate output signal at pin 3 of IC5 is set high. If they are in-phase, a corresponding pulse is output. This pulse is input to pin 5 of IC5 and NANDed with the clock input to pin 4 of IC5. The output pulse at pin 6 of IC5 then becomes a dropout clock.

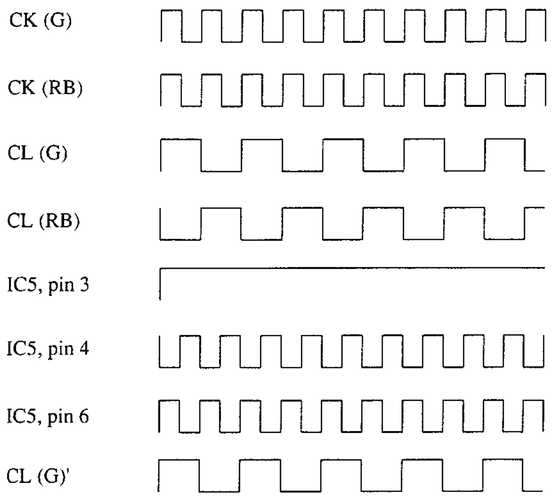
By using this pulse as a clock for channel G, the CL (G) phase is shifted 180 degrees with respect to the CL (RB) phase (opposite-phase). The output signal is set high even if the next CL (G) and CL (RB) clocks are NANDed. Therefore, dropout pulse KP is not output and stabilized in this state. The CL (G) phase must be also delayed with respect to the CL (RB) phase at all times. This operation is performed using IC4.

Timing Chart

1 When CL (G) and CL (RB) clocks are in-phase



2 When CL (G) and CL (RB) clocks are opposite-phase



(5) LH1 negative power supply circuit

Pin 21 (VEE) of CXD1256AR is a –4 V power pin for LH1. Q4 and Q9 produce a –4 V power from the –9 V power and supply it to this pin.

(6) RGL bias adjustment circuit

The RGL bias adjustment circuit consisting of Q3, Q7, and Q8 adjusts the bias of a reset gate (RG) pulse. The RGL value varies depending on CCD imagers. This circuit thus adjusts the RG bias to the optimum value.

(7) VSUB voltage supply circuit

A circuit primarily consisting of Q1 and Q2, a circuit primarily consisting of Q5 and Q6, and a circuit primarily consisting of Q10 and Q11 supply a specified voltage to the overflow drains of CCD imagers for channels G, B, and R. The Q1 and Q2 pair, Q5 and Q6 pair, and Q10 and Q11 pair are regulators that use the VSUB control voltage as a reference voltage.

The VSUB control voltage can be changed in the range of approximately 1.6 to 5.0 V using RV1, RV3, and RV6. It is set so that the overflow drain of the CCD imager becomes a specified voltage. This voltage value varies depending on the CCD imagers. Adjustment is thus required.

In the shutter mode, the charge storage time can be controlled by adding a charge sweep pulse corresponding to the shutter speed to this DC bias. The period in which no charge sweep pulse is output in the shutter mode is defined as exposure time. The exposure time corresponds to the shutter speed. Therefore, this pulse is not output in the normal mode (shutter OFF).

4-3. PR-158/158P BOARD

The PR-158/158P board consists of the circuits below.

- Input amplifier
- Processing circuit (IC8: µPC2372)
- Color-bar generator
- Chroma signal generator
- Y signal and aperture signal circuits

(1) Input amplifier

Since the circuit configuration in R, G, and B channels is almost the same, only the G channel is described below.

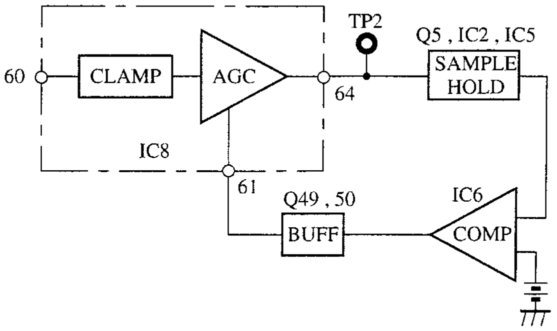
Trap filter FL2 eliminates a 14-MHz video signal component from channel B. The 300 mV voltage at TP7 is used as an input reference voltage.

An inverting amplifier consists of Q23, Q24, Q17, and Q18. The reference pulse from the AT board is mixed using Q18.

Channels R and B select the gain during color temperature conversion by turning on or off Q8 and Q38. In the C TEMP mode of the camera, Q8 is turned on and Q38 is turned off when the color temperature is 3200 K. Q8 is turned off and Q38 is turned on when it is 5600 K. Q82 and Q83 clip it at 1 Vp-p when a high-luminance signal is input. The luminance level can be adjusted using an electronic volume control.

(2) Processing circuit

① GAIN: STEP (Fixed gain mode)



A negative video signal is input from pin 60 of IC8, clamped, then amplified in an AGC amplifier. The amplified signal (330 mV reference voltage at TP2) is input to a sample and hold circuit consisting of Q5, IC2, and IC5. The input signal processes the level of a reference pulse input during vertical blanking period as a DC value. The signal is then compared in IC6 and sent through buffers Q49 and Q50 to pin 61 of IC8. In this case, the gain (including a temperature characteristic) is made constant at all times.

In a gain of +18 dB for 0 dB, the reference pulse input from the AT board is input with the level reduced to 1/8. When the gain is set from 0 dB to +18 dB, the reference pulse decreases and the DC output increases in comparator IC6. The gain in IC8 then increases.

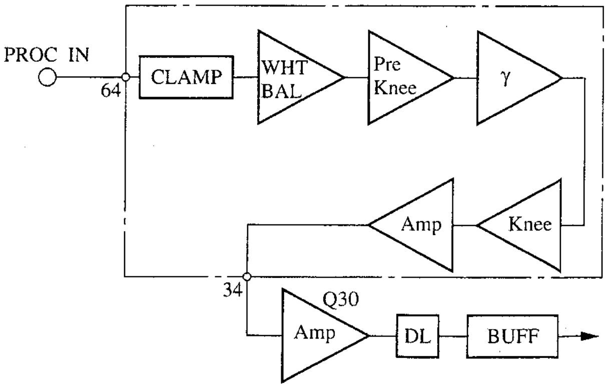
To track the gain in channel G, the values in channels R and B are compared with the hold value from pins 55 and 70 of IC8, with the sample and hold value of a G-channel reference pulse as reference. The comparison result is input to IC8. Limiters Q49 (pin 3) and Q50 (pin 1) determine the minimum and maximum gains.

② GAIN: AGC

The signals output from TP2, TP3, and TP5 are passed through buffers Q19, Q4, and Q40 and mixed in Q25. The mixed signals are sent to clamping circuit Q28 and output to TP10. The output signal is then integrated in R65 and C44, compared in IC6, and input to IC8.

For the STEP (fixed gain mode) and AGC selection, the DC value of a reference pulse and the integrated value of an RGB mix signal are selected using IC3 and IC4.

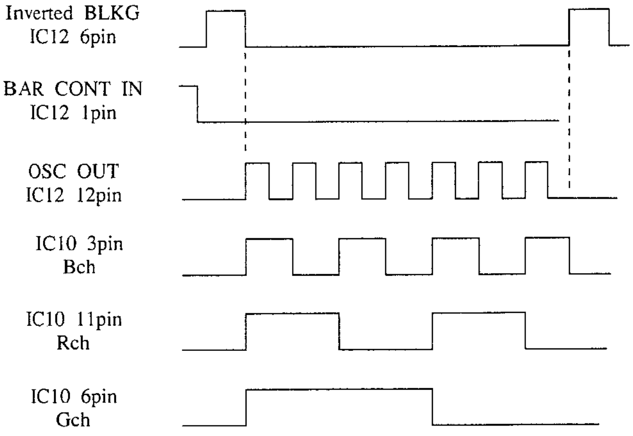
③ Processing circuit



The circuit configuration in channel G is described below.

The signal that is input to IC8 again is clamped and passed through a WHT BAL amplifier. The signal is then passed through a pre knee circuit, γ circuit, and knee circuit and output from pin 34. The gain in this stage is approximately three times the normal. A signal of 1 Vp-p is output when a signal of 330 mVp-p is input. This gain is determined by changing the WHT BAL amplifier using an electronic volume control. A color-bar signal that is amplified in Q30 and output through a delay line to Q32 as a G OUT signal is mixed using Q30.

(3) Color-bar generator



A BLKG pulse is input to pin 3 (4, 5) of IC12, inverted, and input to pin 2 of IC12. A monostable multivibrator is activated when a BAR CONT signal (at pin 1 of IC12) is low. An OSC OUT signal is then input to pin 11 of IC11, and a pulse shown in the figure above is output from IC10. A character signal is also input to IC10, and each signal in channels R, G, and B is mixed in Q13, Q30, and Q46.

(4) Chroma signal generator

A color-difference signal and Y signal are input from the R, G, and B OUT pins (TP6, TP9, and TP13) to IC8 via a matrix resistor (consisting of R136 through R154) and output from pins 22, 18, and 14.

An R–Y (I) signal is inverted in Q56, passed through a lowpass filter consisting of R190, L12, C85, and C86, and amplified in Q60. The amplified signal is input through clamping circuit Q61 to IC14 (subcarrier modulation IC). Similarly, a B–Y (Q) signal is input from Q64, amplified in Q68, and input through clamping circuit Q69 to IC14.

A BF signal is added to each signal, and the burst phase is determined by the signal level. A chroma signal generated in IC14 is passed through bandpass filter FL4 and amplified in Q54 and Q55. The amplified signal is output to pin 13 of connector CN2 and input to the IF board.

(5) Y signal and aperture signal circuits

A Y signal generated in IC8 is output from pin 14 of IC8, amplified in Q77 and Q75, and input to pin 42 of IC17. The signal level is determined by the DC control (electronic volume control) at pin 30 of IC17. A DTL signal (input to pin 40 of IC17) and aperture signal in this Y signal are mixed. A Y OUT signal is then output from pin 22 of IC17, passed through three delay lines (100 m x 3) from Q84, and amplified in Q80. As a result, a signal of approximately 500 mVp-p is output from pin 15 of connector CN2 and input to the IF board. Delay lines DL6 through DL8 are used to align the phase of Y and chroma signals.

The R- and G-channel signals from Q12 and Q29 are mixed in Q70, passed through delay line DL5, and amplified in Q65. The amplified signals are input through buffer Q63 and clamping circuit Q74 to delay line DL4. The signal passed through delay line DL4 and the reflected signal are calculated to produce an aperture signal in IC17.

A DTL signal generated on the IF board is input from pin 1 of connector CN1. The input signal is sent to pin 8 of IC8, amplified in IC8, and output from pin 77 of IC8. The signal is then input through buffer Q52 to pin 40 of IC17 and mixed with a Y signal. DTL and aperture signals are mixed in Q53 to produce an RGB mix signal. The resultant signal is output to pin 17 of connector CN2.

(6) D/A converter

The data signal from the AT board is digital-to-analog converted in IC13, IC16, and IC18 to produce various control signals in IC8 and IC17.

4-4. IF-354/354P BOARD

The IF-354/354P board primarily consists of the circuits below.

- Detail signal circuit
- Video signal driver circuit
- Sync control circuit

(1) Detail signal circuit

The detail signal circuit generates H and V detail signals. It determines the mix ratio so that H : V is 1 to 1 using RV3. This circuit then sends the signals to the PR-158/158P board. For the H detail signal, G IE IN and R IE IN signals are adjusted and mixed using RV2 so that the moire in a detail signal is minimum. The resultant signal is differentiated two times using a two-stage filter to produce the H detail signal. For the V detail signal, a signal obtained when a G IE IN signal is 1H-delayed by CXl5504M is produced. The delay time of the signal is finely adjusted using a filter after it is amplified. The 1H-delayed signal is mixed with the inverted former G IE IN signal in Q14 to produce the V detail signal. RV1 is adjusted so that signals other than a detail component are eliminated using RV1.

(2) Video signal driver circuit

The detail signal returned from the PR-158/158P board is resistance-mixed with the R, G, and B OUT signals (1.0 V when 100%) from the PR-158/158P board. In channel G, the sync signal (adjusted to 300 mV (in 75-ohm termination) during output from the camera) whose level is adjusted using RV7 is mixed. The signal is then level-adjusted using RV4, RV5, and RV6 (adjusted to 1.4 V when 100%) and sent to the CN board by a driver circuit.

Y and C signals are sent through the driver circuit to the CN board, respectively. The Y and C signals passed through the driver circuit are resistance-mixed to produce a VBS signal and output through the driver circuit to the CN board.

(3) Sync control circuit

The sync control circuit selects a sync signal by the SYNC CONT voltage from the CN board and outputs it by a driver circuit.

4-5. AT-69 BOARD

<Outline>

The AT-69 board consists of the circuits below.

- Auto white balance
- Auto black balance
- Auto iris
- Electronic control
- Character generator
- Zoom and focus control
- Others

The AT-69 board performs various system controls such as an auto white balance, auto black balance, CCD iris, electronic shutter control, auto iris control, and AGL by using a microcomputer. This board reads the six switches on the rear panel and displays the state on the screen as a character to perform all the user controls. It also interfaces with the camera control unit (CCU) in series and controls the electronic control.

Eight-bit microcomputer IC20 (HD63B05Y0E53F: Hitachi) primarily performs the system controls above. The HD63B05Y0 is a CMOS eight-bit single chip microcomputer in which an 8K-byte ROM is masked. Fig. 1 shows the block diagram of the microcomputer.

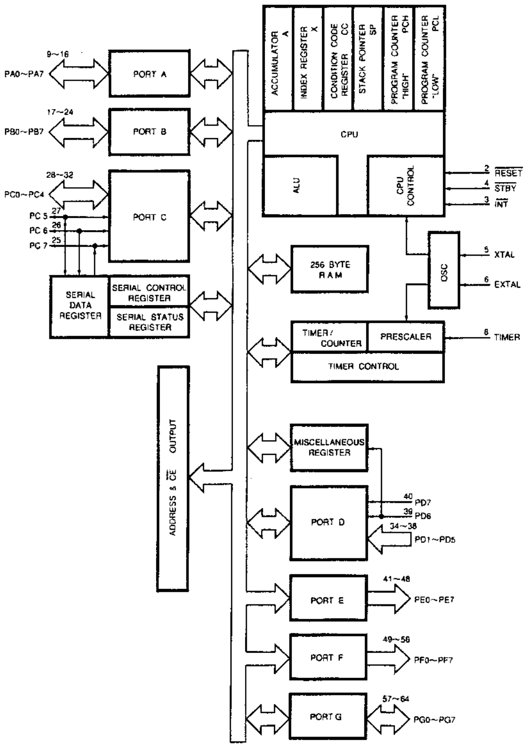

ACCUMULATOR A
INDEX REGISTER X
CONDITION CODE REGISTER CC
STACK POINTER SP
PROGRAM COUNTER "HIGH" PCH
PROGRAM COUNTER "LOW" PCL
9~16
PA0~PA7
PORT A
17~24
PB0~PB7
PORT B
CPU
28~32
PC0~PC4
PC 5
27
PC 6
26
PC 7
25
PORT C
ALU
CPU CONTROL
2 RESET
4 STBY
3 INT
SERIAL DATA REGISTER
SERIAL CONTROL REGISTER
SERIAL STATUS REGISTER
256 BYTE RAM
OSC
5 XTAL
6 EXTAL
TIMER / COUNTER
PRESCALER
8 TIMER
TIMER CONTROL
ADDRESS & CE OUTPUT
MISCELLANEOUS REGISTER
PORT D
40 PD7
39 PD6
34~38
PD1~PD5
PORT E
41~48
PE0~PE7
PORT F
49~56
PF0~PF7
PORT G
57~64
PG0~PG7

Fig. 1 Block Diagram of Microcomputer

The major features of this microcomputer are as follows:

- 256-byte RAM
- 32 I/O ports
- Seven input ports
- Sixteen output ports
- Two internal timers
- Internal serial interface circuit
- Interrupts:
  External port 2, timer 2, serial port 2, and software 1
- Minimum instruction time: 1 μsec

Table 1 shows the pin name and function of this microcomputer.

EEPROM IC21 (M6M80011AFP) is connected to this microcomputer. The auto white control data, auto black control data, internal control data, user control data displayed on the screen, and electronic control data are memorized in the EEPROM.

The M6M80011AFP is a 1024-bit CMOS EEPROM that enables an electric erasure and electric program. Fig. 2 shows the block diagram of the EEPROM.

The major features of the EEPROM are as follows:

- 5 V single power
- Clock sync serial input/output
- Three-port control (minimum) (Can connect CS and RESET, and D1 and D0.)
- Internal sequential controller
- Number of erasure and write times: 100000
- Data storage: 10 years

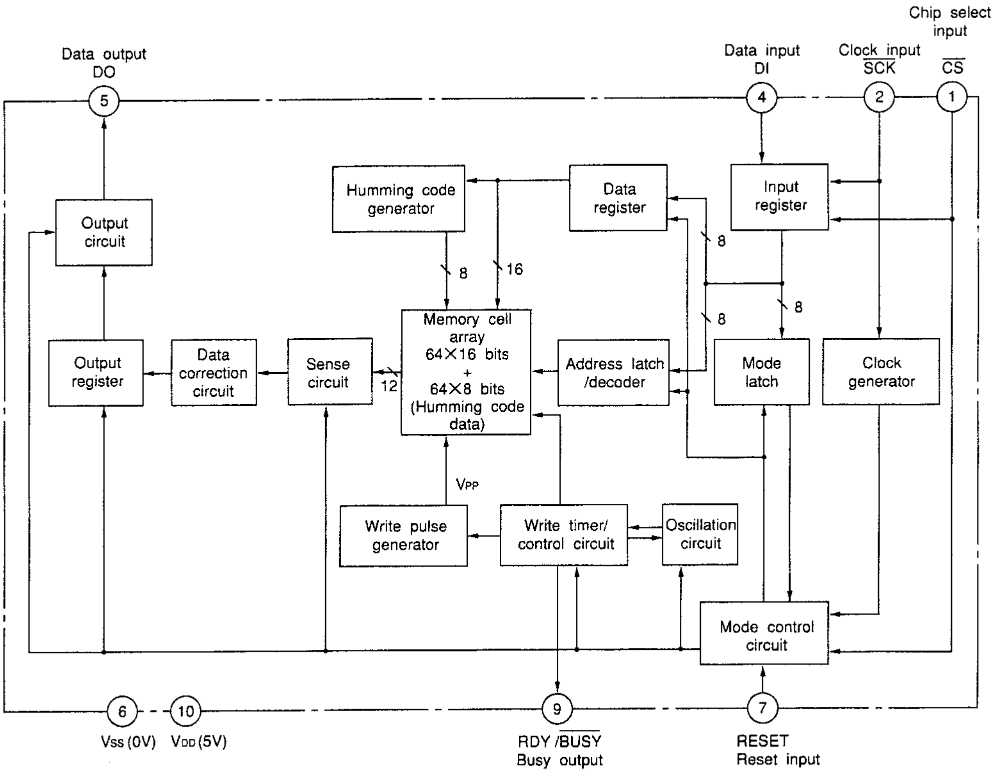

Chip select input
Data output DO
Data input DI
Clock input $\overline{SCK}$
$\overline{CS}$
5
4
2
1
Humming code generator
Data register
Input register
Output circuit
8
16
8
8
Memory cell array 64×16 bits + 64×8 bits (Humming code data)
12
Output register
Data correction circuit
Sense circuit
Address latch /decoder
Mode latch
Clock generator
VPP
Write pulse generator
Write timer/ control circuit
Oscillation circuit
Mode control circuit
6
10
9
7
Vss (0V)
VDD (5V)
RDY /$\overline{BUSY}$ Busy output
RESET Reset input

Fig. 2 Block Diagram of EEPROM

No.	PORT NAME	I/O	FUNCTION & REMARKS
1	TIMER	I	TIMER INTERRUPT CLOCK IN (VD)
2	PA7	O	D/A CONV. CS-5
3	PA6	O	D/A CONV. CS-4
4	PA5	O	D/A CONV. CS-3
5	PA4	O	D/A CONV. CS-2
6	PA3	O	D/A CONV. CS-1
7	PA2	O	SHUTTER STROBE
8	PA1	O	SERIAL DATA TO D/A, SHUTTER, CHARA GEN.
9	PA0	O	SERIAL CLOCK TO D/A, SHUTTER, CHARA GEN.
10	PB7	I	OPE/ADJ SELECT, SET=OPE
11	PB6	I	NTSC/PAL SELECT, SET=PAL
12	PB5	I	A/D CONV. IN
13	PB4	O	CHARA STROBE
14	PB3	O	CHARA CS
15	PB2	I	EEPROM BUSY
16	PB1	O	EEPROM CS
17	PB0	I	EEPROM DATA IN
18	PC7	O	LADDER R2
19	PC6	O	LADDER R3
20	PC5	O	LADDER R4
21	PC4	O	LADDER R5
22	PC3	O	LADDER R6
23	PC2	O	LADDER R7
24	PC1	O	LADDER R8
25	PC0	O	LADDER R9
26	Vcc	I	DC 5V IN
27	PD1	I	
28	PD2	I	PRESET INPUT FOR ADJ
29	PD3	I	0/18dB SELECT, CLR=0dB, SET=18dB
30	PD4	I	18dB CONT INT/EXT, SET=INT, CLR=EXT
31	PD5	I	GEN LOCK INT/EXT IN
32	PD6	I	BLKG IN
33	PD7	I	VD IN
34	PE0	O	S/H CHARGE RESET SET=CHARGE RESET
35	PE1	O	S/H TIME SELECT, SET=PEAK (WHT) S/H
36	PE2	O	S/H AREA SELECT 1
37	PE3	O	S/H AREA SELECT 2
38	PE4	O	S/H AREA SELECT 3
39	PE5	O	S/H CHANNEL SELECT 1
40	PE6	O	S/H CHANNEL SELECT 2
41	PE7	O	S/H CHANNEL SELECT 3
42	PF0	O	A/D SELECT 1
43	PF1	O	A/D SELECT 2
44	PF2	O	CCU ID (ZOOM & FOCUS) SET=CCU MODE
45	PF3	O	IRIS CLOSE OUT CLR=IRIS CLOSE, SET=OPEN
46	PF4	O	CABLE COMP. FOR GEN LOCK, SET=ON, CLR=OFF
47	PF5	O	AGC/STEP GAIN SELECT, SET=AGC, CLR=STEP
48	PF6	O	
49	PF7	O	SERIAL DATA OUT TO CCU
50	PG7	O	
51	PG6	O	IRIS AUTO/MANU OUT, SET=MANU, CLR=AUTO
52	PG5	O	VBS Y/C SELECT, SET=VBS, CLR=Y/C
53	PG4	O	C. TEMP, SET=5600K, CLR=3200K
54	PG3	O	SC 0/180 CONT., SET=180, CLR=0
55	PG2	O	SYNC ON GREEN, SET=ON, CLR=OFF
56	PG1	O	BARS, SET=ON, CLR=OFF
57	PG0	O	FLD/FRM, SET=FRAME MODE, CLR=FIELD MODE
58	Vss	I	GND IN
59	RESET	I	SYSTEM RESET PORT
60	INT	I	SERIAL INTERRUPT
61	STBY	I	STANBY IN
62	XTAL	I	4MHz OSC
63	EXTAL	I	4MHz OSC
64	NUM	I	

Table 1 Pin Name and Function

(1) Auto white balance circuit

The white balance is established by making the level of R and B signals the same as that of a G signal when a white object is shot.

The R, G, and B signals output from the PR-158/158P board are input to generate R–G and B–G signals. Assume that the peak value of a Y signal produced when the R, G, and B signals are mixed is a white level. The R–G and B–G signals are sampled at the peak of the Y signal to obtain an error signal in the white level. The error signal is A/D converted and input to the microcomputer as 8-bit data. The microcomputer calculates a gain control signal from this error signal and outputs it. The output signal is input to the D/A converter to control the R and B gains on the PR-158/158P board by an analog output signal. The white balance is then established.

Actually, the level of the peak value is checked before white balance operation to judge whether the input level is proper. The white balance operation is initiated after the input level is judged to be proper.

① Operation of input value level check

The signal input to the base (G-channel) of Q3 is passed through buffer Q3 and clamped in Q5 using an HD pulse. The clamped signal is passed through buffer Q2, then sampled and held in IC9 using a Y peak signal. The Y signal from the PR-158/158P board is input to the base of Q12. The input signal is sent through buffer Q12 to clamping circuit Q14 and input to pin 3 of IC15 after a negative unwanted signal is sliced in NAM circuit Q13.

IC15 (2/3) cuts the superimposed reference pulse from the PR-158 board using a blanking signal. After that, the peak level is held in Q20 and D4, and a Y peak pulse is obtained in Q17. The Y peak pulse input to pin 15 of IC14 is GATEed in the detection frame shown in Fig. 3 and output from pin 3 of IC14. The pulse is then used as a sample and hold pulse of IC9. The detection frame is obtained by controlling an IC using a microcomputer. The G signal that is sampled and held using a Y peak signal is sent through analog switch IC5, IC7, and Q4 to pin 5 of IC11. The reference voltage (REF DC) (approximately 0.6 V) obtained at the emitter of Q15 is sent through IC5, IC7, and Q4 to pin 2 of IC11. IC5 is switched using a microcomputer. A G-REF DC signal is obtained at pin 10 of IC11, amplified in IC11, then input to pin 14 of IC13. Analog switch IC13 selects an A/D conversion input signal. The input signal at pin 14 of IC13 is input to pin 13 of IC11. The resultant signal is A/D converted using a sequential A/D converter consisting of comparator IC11 (4/4) and microcomputer IC20 so as to load data into the microcomputer. Limiters D3 and D2 limit the amplitude of a signal so that it does not change in the range exceeding 0 to 5 V.

The G-REF DC signal loaded into a microcomputer is compared with the data that is written in advance in EEPROM. The comparison becomes invalid when the output level is less than 40 IRE (PAL : 300 mV) . The white balance operation is initiated when the output level is more than 40 IRE (PAL : 300 mV) .

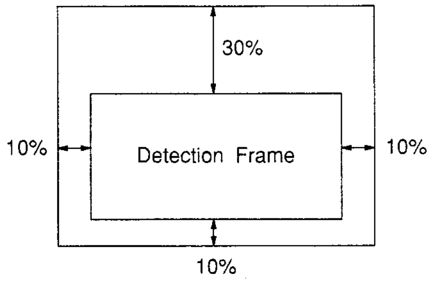


Fig. 3 White Peak Detection Frame

② White balance operation

As described in step 1, R, G, and B signals are simultaneously sampled and held in IC9. Error signals G–G, R–G, and B–G can be obtained at pin 10 of IC11 when IC5 and IC2 are switched using a microcomputer. The G–G signal is memorized in the microcomputer as a reference voltage. The R–G and B–G signals are also memorized in the microcomputer as an 8-bit digital signal. The G–G and R–G error voltages memorized in the microcomputer are compared. If the difference is within one bit (the least significant one bit of an 8-bit signal), the white balance is judged to be established. If the white balance is established, the microcomputer proceeds to the next step without correction. If not, that is, Δ exceeds "1" (Δ > 1) in the expression below, the R gain is changed and the gain of the R signal is adjusted to establish the white balance.

$$(G-G) - (R-G) = \Delta$$

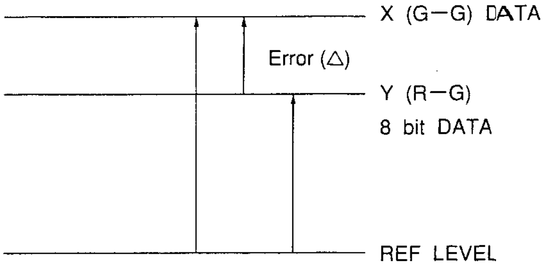


Fig. 4 Error Voltage

The R gain signal is serial data. It is sent from the microcomputer to D/A converter IC16 on the PR-158/158P board and converted into an analog voltage. The resultant signal is output to the gain control circuit. At that time, the microcomputer changes an 8-bit digital signal to 00H through FFH by the Δ value.
However, the operation becomes invalid when the difference between the R–G and G–G signals is great and when the white balance is not established even if "00H" or "FFH" is output. The R gain signal is repeatedly changed until the difference between the R–G and G–G signals becomes within one bit. If the difference is within one bit, the operation is judged to be satisfactory. This operation is done three times again. When it is judged to be satisfactory four times in all, the four-times operation data is compared and arranged in the descending order. The mean value of the two data items in the middle is used as the final R gain data. The R and B gains are corrected by one sample-and-hold operation. Channel B is also controlled in the same manner as channel R (Fig. 5). After the white balance operation is completed, the R and B gain data are written in the EEPROM and messages "WHITE:OK" and "WHITE:NG" are output on the monitor. The auto white balance operation is then completed.

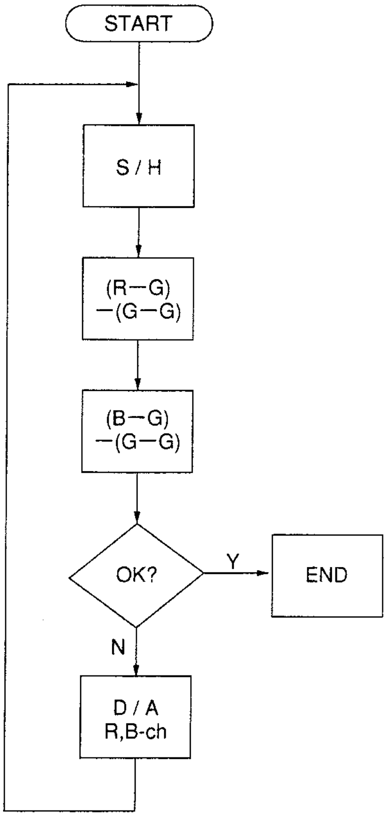


Fig. 5 White Balance Operation

(2) Auto black balance

The auto black balance operation is performed in the procedure below.

1) The iris of a lens is closed forcibly. The light amount is detected to confirm that the iris is closed electrically.

2) The black tracking operation is performed to stabilize it so that the output black level (pedestal level) does not fluctuate when the gain select switch is set from 0 dB to 18 dB with the lens closed. The auto black tracking is performed using an R signal. Next, it is performed using a B signal, then G signal.

3) The black balance operation is performed. The black levels in all the channels of R, B, and G signals are made same. The black levels of G–G and R–G signals are compared with the lens closed. If an error occurs, the black level of the R signal is corrected. Next, the black levels of G–G and B–G signals are compared. If an error occurs, the black level of the B signal is corrected. As a result, the black level between channels is established.

The auto black operation is completed when the three operations above are completed.

① Lens iris close operation

To establish auto black balance, the external light must be shut off. Therefore, the iris must be closed when establishing the black balance. Pin 45 of microcomputer IC20 is kept low if the black balance switch is set to ON when an auto iris lens is used. A high-level signal is then output from Q22 and sent to the lens as an iris close signal. Whether the lens iris is completely closed at that time is judged by the G-REF DC signal detection. The microcomputer selects so that IC5 obtains an R-REF DC signal. In this case, the absolute value of the G-REF DC signal is not detected to judge whether the lens iris is closed. By using an electronic shutter and judging from the relative value, precise detection can be done not depending on a change in temperature and a change with the passage of time. As shown in Fig. 6, the shutter speed is first set to 1/60 (sec) to detect a G-REF DC signal, then 1/1000 (sec) for detection. If no change appears in the detection value, the lens iris can be closed.

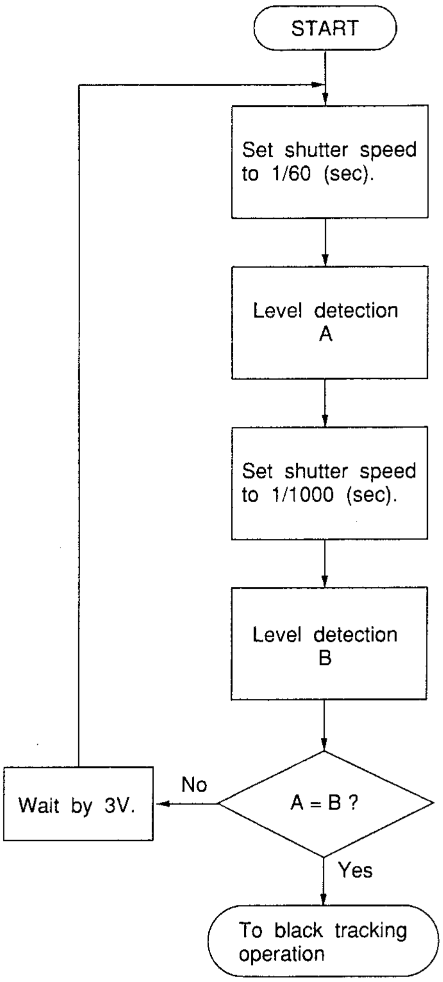

START
Set shutter speed to 1/60 (sec).
Level detection A
Set shutter speed to 1/1000 (sec).
Level detection B
A = B ?
No
Wait by 3V.
Yes
To black tracking operation

Fig. 6 Iris Close Check

② Black tracking operation

During black tracking operation, the pedestal levels of R, G, and B signals are stabilized so that they do not fluctuate when the gain select switch is set from 0 to 18 dB and vice versa with the iris closed. IC20 is switched by a microcomputer after confirming that the iris is closed. An R-REF DC signal, G-REF DC signal, and B-REF DC signal can be then obtained sequentially. Data is first A/D converted with the gain set to 0 dB. The A/D converted data is memorized in the microcomputer. Next, the gain is set to 18 dB. The data is then memorized.

A black tracking control signal is produced by the difference of the data when the gain select switch is set to 0 dB and 18 dB. The signal is then sent to D/A converter IC12 by serial data to produce an analog output signal. The resultant signal is mixed with a black tracking preset voltage when it is input to IC10. A blacking tracking pulse is then obtained from IC10 using an HD pulse. The pulse is amplified in IC8 and sent to the PR-158/158P board. This operation is repeatedly performed when the gain select switch is set from 0 to 18 dB and vice versa. The difference of the data is controlled so that it is within 11 bits.

③ Black balance operation

During black balance operation, the black level of a G signal is sequentially compared with the black levels of R and B signals with the iris closed. G–R and G–B signals are then obtained. R and B pedestal signals are output to the PR-158/158P board to adjust the pedestal levels of the R, G, and B signals so that the difference between the G–R and G–B signals is zero ("0"). A reference pulse is first produced by a G–G signal, and an R–G signal is A/D converted. The difference between the G–G and R–G signals is D/A converted to produce an R pedestal signal and output to the PR-158/158P board. A B–G signal is also treated in the same manner as the above. These operations are the same as the white balance operation except that the iris is closed or opened.

(3) Alarm displays

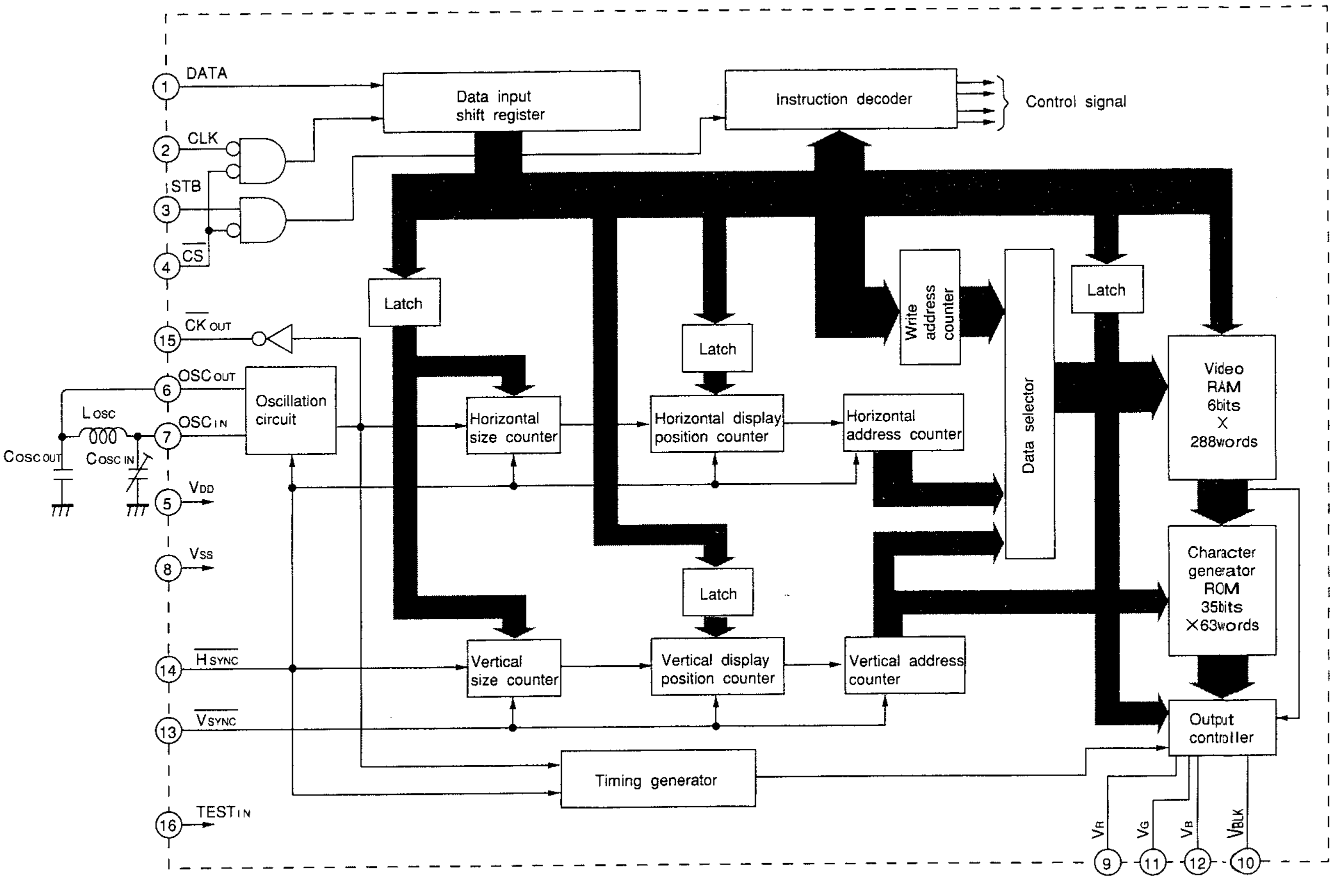
During auto white balance and auto black balance operations, the alarm displays below are output on the monitor.

Display	Description
WHITE : OK	Indicates that the white balance was established.
WHITE : NG	Displayed when the white balance is not established for a fixed time period. The circuit, lighting condition, or adjustment is defective.
WHITE : NG **LEVEL : LOW**	Displayed when the video output level is too low (less than about 40 IRE (PAL : 300 mV)).
WHITE : NG **LEVEL : ???**	Displayed when the video output level does not change at all during white balance operation.
WHITE : NG **C. TEMP : HI**	Displayed when the color temperature is too high. Change the lighting condition or color temperature.
WHITE : NG **C. TEMP : LOW**	Displayed when the color temperature is too low. Change the lighting condition or color temperature.
BLACK : OK	Indicates that the black balance was established.
BLACK : NG	Displayed when the black balance is not established. The circuit or adjustment is defective.
BLACK : NG **IRIS : CLOSE?**	Displayed when light goes in the lens.

Table 2 Alarm Displays

(4) Character generator

IC22 (μPD6142G) generates a character on the monitor. The data for the display is input from a microcomputer. Each alarm, user control status, adjustment data are displayed. Fig. 7 shows the block diagram of the character generator.



1 DATA
2 CLK
3 STB
4 CS
15 CK OUT
6 OSC OUT
7 OSC IN
Losc
Cosc OUT
Cosc IN
5 VDD
8 VSS
14 HSYNC
13 VSYNC
16 TEST IN
Data input shift register
Instruction decoder
Control signal
Latch
Write address counter
Data selector
Latch
Video RAM 6bits X 288words
Oscillation circuit
Horizontal size counter
Latch
Horizontal display position counter
Horizontal address counter
Character generator ROM 35bits X63words
Latch
Vertical size counter
Vertical display position counter
Vertical address counter
Output controller
Timing generator
VR 9
VG 11
VB 12
VBLK 10

Fig. 7 Block Diagram of Character Generator

(5) Electronic control and adjustment

Electronic control are used instead of semi-fixed controls for the adjustment and user control. ADJ NO. and DATA are displayed when switch SW1 is set to "ADJ". During adjustment, an analog voltage is output to D/A converters IC12 and IC23, and data is simultaneously written in EEPROM IC21.

Table 3 shows the electronic control list.

Adjust NO.	Data Name	Remarks	D/A OUT	BOARD
1	R. Black Tracking		IC12 ⑲ pin	AT-69
2	G. Black Tracking		IC12 ②	AT-69
3	B. Black Tracking		IC12 ③	AT-69
4		Not using		
5	Y Level		IC13 ⑱	PR-158/P
6	Sync Level		IC13 ⑲	PR-158/P
7	Set Up Level		IC13 ②	PR-158/P
8	Enable White.Clip		IC13 ③	PR-158/P
9	AGC Max Level		IC13 ④	PR-158/P
10	AGC Min Level		IC13 ⑤	PR-158/P
11	*AGC / Step	AGC Refference Level Setting	IC13 ⑥	PR-158/P
12	*Step / AGC	Step Refference Level Setting	IC13 ⑦	PR-158/P
13	Master WHT. Bal		IC16 ⑲	PR-158/P
14	R WHT. Bal		IC16 ②	PR-158/P
15	B WHT. Bal		IC16 ③	PR-158/P
16	R. Pre Knee		IC16 ⑥	PR-158/P
17	G. Pre Knee		C16 ⑦	PR-158/P
18	B. Pre Knee		IC16 ⑧	PR-158/P
19	R. Pedestal		IC16 ⑨	PR-158/P
20	G. Pedestal		IC16 ⑫	PR-158/P
21	B. Pedestal		IC16 ⑬	PR-158/P
22	Gamma		IC18 ③	PR-158/P
23	Knee		IC18 ④	PR-158/P
24	White. Clip		IC18 ⑤	PR-158/P
25	Aparture Level		IC18 ⑥	PR-158/P
26	Aparture Crisp.		IC18 ⑦	PR-158/P
27	DTL-MAX		IC18 ⑧	PR-158/P
28	DTL Level		IC18 ⑨	PR-158/P
29	DTL Crisp.		IC18 ⑬	PR-158/P
30	Iris Refference		IC23 ④	AT-69
31	SC. Phase		IC23 ⑤	AT-69
32	CCD-Iris Level		*	AT-69 (IC20)
33	Spare EVR for AT	Not using		
34	R AGC clip	Rch clip level at AGC input	IC13 ⑨	PR-158/P
35	B AGC clip	Bch clip level at AGC input	IC13 ⑫	PR-158/P
36				
37	Peak min.	White balance min. data	*	AT-69 (IC20)
38	Iris close	Iris close margin data	*	AT-69 (IC20)

* : Constant in IC20 / AT-69

Table 3 Electronic control list

(6) User control

As shown in Fig. 8, the user control state such as a gain control, detail control, and shutter control is displayed on the monitor to control data using six switches on the rear panel. Voltage values are set to the six switches, respectively. These voltage values are A/D converted, then read by a microcomputer.

The input voltage at pin 2 of IC13 is passed through IC13 and A/D converted by IC11 and the microcomputer to judge which switch was pressed.

■	GAIN	STEP
	STEP	07DB
	C. TEMP	3200K
	WHT. BAL	AUTO
	CCD IRIS	OFF
	SHUTTER	OFF
	STEP	1 / 10000
	MANU	255

— MENU —

BARS	ON
M. PED	+12
DTL	-22
H. PHASE	128
SC	140
0/180	180
GAMMA	ON
G. SYNC	ON
FLD/FRM	FLD
D-SUB	VBS

Fig. 8 User Control

(7) Gain control circuit

The gain control is primarily performed on the PR-158/158P board. A reference pulse used for the gain control is controlled in this circuit. The reference pulse is shown in Fig. 9. The size of the reference pulse is controlled in an automatic gain control (AGC) and fixed gain by the microcomputer. The voltage at pin 12 of D/A converter IC12 is switched to 5 V in IC3 to produce a pulse. The pulse is then output from the emitter of Q1 to the PR-158/158P board. The switching pulse in IC3 is produced by ANDing HD and CLP1 pulses in IC19 (TC4S81f).

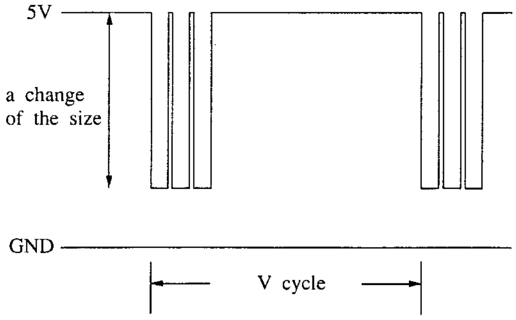


Fig. 9 Referense Pulse

(8) CCD iris

The CCD iris keeps the video output level constant by changing the shutter speed of the CCD.

The Y signal from the PR-158/158P board is input to the base of Q12. The input signal is clamped in Q14, and the unwanted portion is sliced in NAM circuit Q13. The resultant signal is input to pin 1 of IC15 (1/3), where a reference pulse is cut. The signal is then passed through buffers Q24 and Q25 and rectified in R88 and C27. A Y REF DC signal is produced by switching IC5. The Y REF DC signal is A/D converted, and data is loaded into the microcomputer.

This data is compared with the data that is memorized in advance in the EEPROM. The shutter speed is calculated so that the difference is zero ("0"). The calculated result is sent to the shutter speed control circuit on the TG-102/102P board by serial data. The video output level is controlled so that it is always constant.

(9) Auto iris

The Y signal input to the base of Q12 is sent to clamping circuit Q14. The unwanted portion is eliminated in NAM circuit Q13. A reference pulse is cut in IC15 (1/3). The resultant signal is input through buffer Q24 to pin 5 of IC1 (1/4). The input signal is buffered in IC1 (1/4), rectified in R8 and C5, then input to pin 2 of IC1 (2/4). In IC1 (2/4), the voltage output from pin 4 of D/A converter IC23 is input to pin 3. IC1 (2/4) also forms a loop so that the rectified value input to pin 2 is constant.

(10) Zoom and focus circuits

The zoom and focus can be controlled when a remote control unit (RM-930) and camera control unit (CCU) are connected.

① When remote control unit is connected

A ZOOM control voltage is input from the remote control unit to pin 2 of switch SW2. When SW2 is set to "ZF", the ZOOM control voltage is input to pin 2 of IC16 (1/3). Pin 10 of IC16 (1/3) is low when the remote control unit is connected. Therefore, the ZOOM control voltage is input to pin 3 of IC24 (1/2), amplified, then output from pin 1. The voltage changes in the range of 2 to 8 V. A FOCUS control voltage is also the same as the ZOOM control voltage.

② When camera control unit (CCU) is connected

Pin 10 of IC16 (1/3) is set high when the CCU is connected. The ZOOM control voltage sent from the CCU by serial data is sent to D/A converter IC23 and output from pin 6. The output signal is then input through IC16 to pin 3 of IC24 (1/2). The ZOOM control voltage from pin 1 changes in the range of approximately 2 to 8 V. A FOCUS control voltage is also the same as the ZOOM control voltage.

When switch SW2 is set to "PT" during CCU connection, the PAN and TILT control voltages from the CCU are output from pins 8 and 9 of IC23 and sent through SW2 to pins 21 and 19 of connector CN2.

4-6. SG-194/194P BOARD

<OUTLINE>

The SG-194/194P board generates various sync signals. This board automatically sets the external sync mode when a genlock (VBS) signal is input from the outside, then outputs a sync signal synchronized with the genlock signal.

• Internal sync

For the NTSC system, the DC clock controlled by RV1 is sent through IC6 (CXD1216M) to buffer Q5 to control VCO CP1 and set a clock frequency. The 28 MHz clock is sent to the TG-102/102P board, frequency-divided by one half, then sent back. The clock is then input to pin 26 of IC10 (CXD1217M). Various pulses are then output with this clock as reference.

For the PAL system, the DC clock controlled by RV1 controls CP2. A 4 fsc signal is input to pin 10 of IC10. This signal is sent to phase comparator IC10 and output from pin 24 (H COM OUT). The output signal is then sent through IC6 to a low-pass filter (consisting of R37, R41, C22, and C24) and buffer Q5 to control VCO CP1.

• External sync (VBS genlock)

An EXT VBS signal is input from pins 4 and 2 of connector CN1. The EXT VBS signal is input from pin 4 of CN1 when it is input the camera. The EXT VBS signal is input from pin 2 of CN1 when it is input to the camera control unit (CCU). The camera side has priority in this case. The VBS signal input to pin 4 of connector CN1 is input to pin 5 of IC1 (1/2) and amplified in IC1 (1/2). After that, the lower edge of a sync signal in the VBS signal is clamped to ground using C4 and D3. When the VBS signal is input to hold the DC component at the upper edge of a sync signal using C9, pin 11 of IC2 (2/3) is set low. The VBS signal is then supplied to the sync separation circuit.

The VBS signal input to pin 2 of connector CN1 is terminated in R4 and sent to pin 1 of IC1 (1/3). Pin 10 of IC2 (1/3) is set high when the extension distance of the camera and CCU is 200 m or 300 m. A cable compensation circuit consisting of C12, R14, C11, R13, C10, and R12 is then activated.

Q2 and Q1 is a floating amplifier that cancels the hum occurring during cable extension. The VBS signal is then sent through buffer Q3 to the sync separation circuit. The burst component in the VBS signal is passed through bandpass filter consisting of L3 and C15, amplified in Q4, and converted into an amplitude of 0 to 5 V using comparator IC5. R25 slightly contains hysteresis to prevent noise. The burst component output from pin 6 of IC5 is input to pin 17 of IC6. The burst component is compared with an internal subcarrier in IC6. The comparison output is sent to pin 1 of IC6 to pin 2 of IC7, where the VD period is extracted (because the V BLKG period of the burst component is lost, nothing to be compared exists, and an error occurs in the output of the comparator). The resultant signal is passed through a low-pass filter consisting of R35, R36, C20, and C21, amplified in operational amplifier IC8 (1/2), then input to the control voltage input pin of CP2 (4 fsc VCO), where an oscillated 4 fsc signal is input to sync signal generator IC10. As a result, an internal subcarrier is locked to the external subcarrier (burst). The subcarrier generated in IC10 is sent to the encoder using an SC phase shifter consisting of IC12 and IC13. The subcarrier from IC10 is input to pin 9 of IC13 (2/2) and output from pin 12 with the pulse width changed. This pulse width can be changed by the external DC control. In this case, a feedback is established by IC12 to compensate for the temperature characteristic. The output signal is input to pin 2 of IC13, then output with the duty cycle set to 50 %. The 0/π selection can be performed by selecting Q and Q output signals using analog switch IC3 (1/3). The subcarrier phase can be continuously changed by changing the pulse width above. The phase of the encoder output subcarrier then coincides with that of the external subcarrier.

The sync signal in the VBS signal is amplified in Q10 through Q12 and sent through a low-pass filter consisting of R94 and C63 to sync separation circuit IC4. The sync signal is then input to pin 17 of IC6. The FH pulse output from pin 27 of IC10 is input to monostable multivibrator IC11 (1/2). The pulse width can be then changed by the external DC control. In this case, a feedback is established by IC8 (2/2) to compensate for the temperature characteristic. The pulse is then input to pin 15 of IC6 and compared with the external sync signal above. An output signal at pin 9 is passed through a low-pass filter consisting of R37, R41, C22, and C24 to control CP1 (VCO). As a result, the phases of an internal H pulse and external sync signal are kept constant. These phases can coincide with each other by controlling the pulse width of H phase shifter IC11 (1/2).

• Generation of CLP5

A CLP5 pulse is used to clamp the AGC circuit on the PR-158/158P board. It has the phase relation shown in Fig. 1.

An HD pulse at pin 8 of IC10 is integrated in R84 and C56, then input to IC14. The input pulse is inverted in IC14 and integrated in R85 and C57. The pulse width is controlled by monostable multivibrator IC11 (2/2). The resultant pulse is output from pin 6.

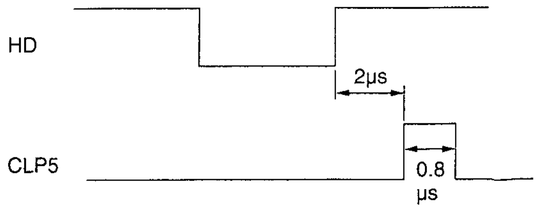
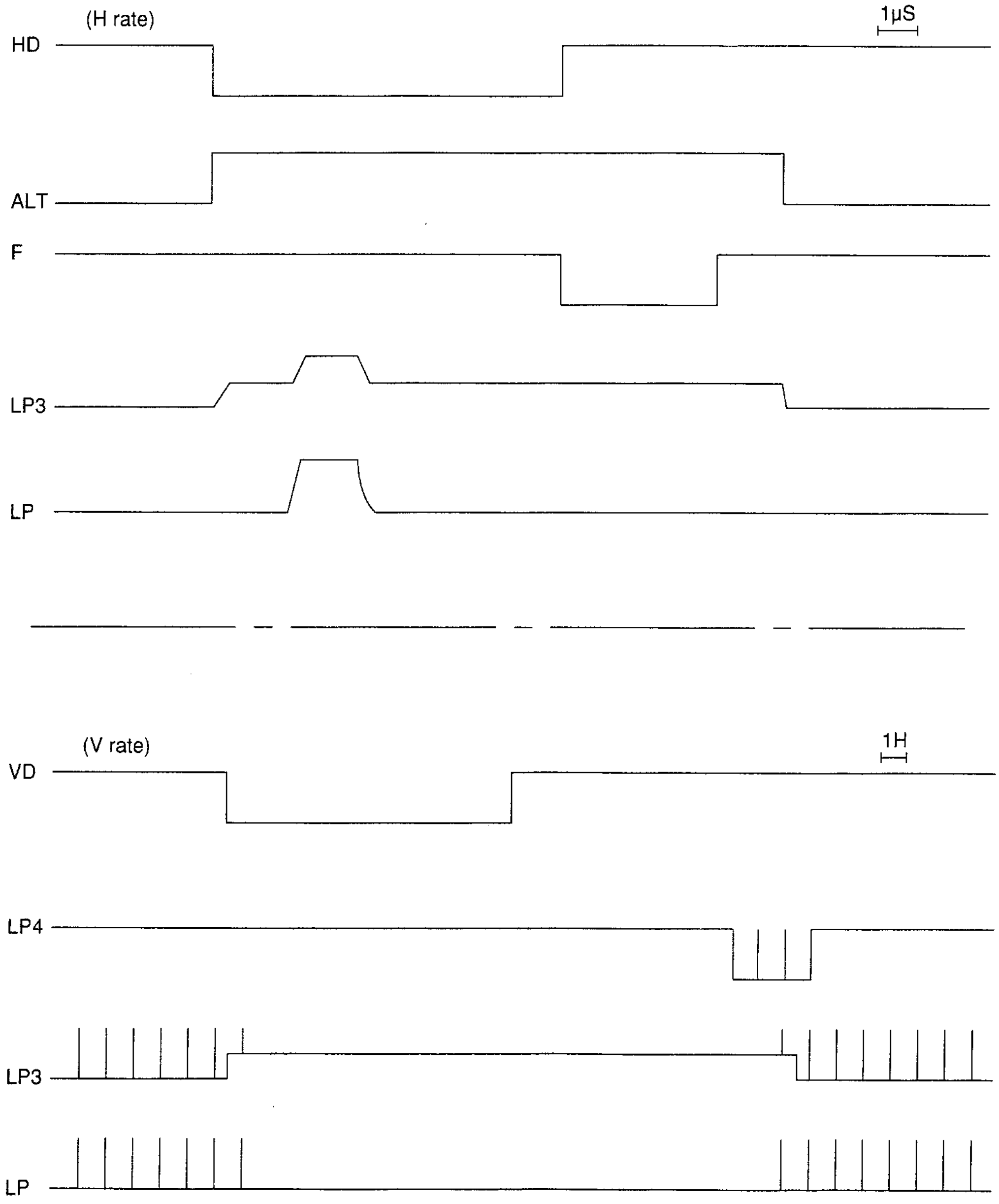


Fig. 1 CLP5 (NTSC)

4-7. MB-380 BOARD

The MB-380 board primarily consists of a DC/DC converter that supplies the DC power required for each block and a circuit that generates seven pulses from a pulse on the SG board and sends them to the PR-158/158P board. Fig. 1 shows the timing chart for each output pulse. C9, R3, R4, R5, and R6 are a noise elimination filter when operating the lens using RM-930.

Timing Chart of DXC-930 (NTSC)



4-8. CN-579/580 BOARD

The CN-579/580 board consists of an input and output connectors, control voltage circuit, and video signal driver circuit.
The CN-579 board differs from the CN-580 board in that it has the number of pins required for connection with CCU-M3, CCU-M7, and RM-930.
The VBS signal of a 9-pin DSUB connector (CN5) and the Y/C signal output are selected using an analog switch. A sync signal is selected using switch SW7.
The SENSE (+) and (-) pins on the CN-579 board output a reference DC voltage (approximately 2.5 when a proper voltage is supplied to the camera) to fix the supply voltage sent from CCU to DXC-930 when they are connected to the CCU.

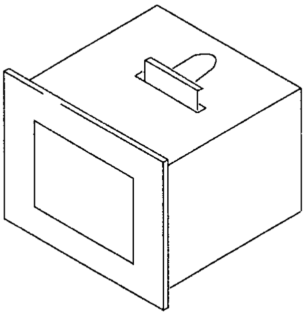
SECTION 5
ALIGNMENT

5-1. PREPARATION

5-1-1. Fixtures and Equipments Required

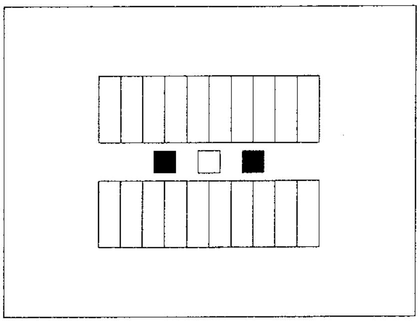
J-6029-140-B	Pattern Box PTB-500

- Light source for test charts AC90～240V

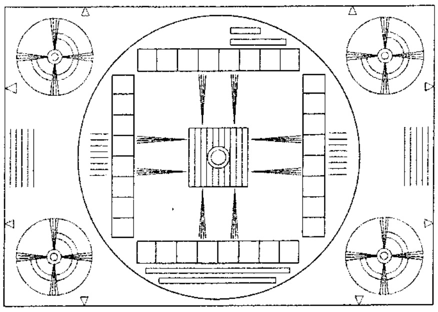


A-6026-130-B	Grayscale Chart

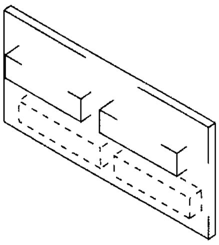
- For video level adjustment, etc.



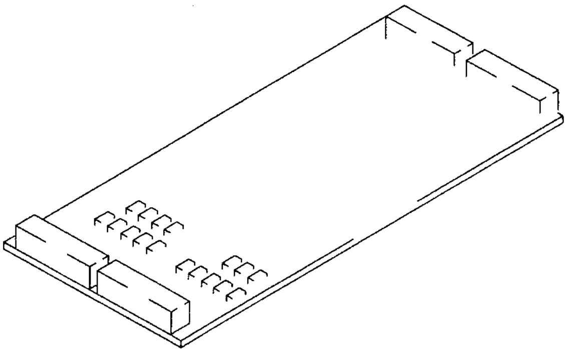
J-6026-100-A	Resolution Chart



J-6097-110-A	Extension board EX-328

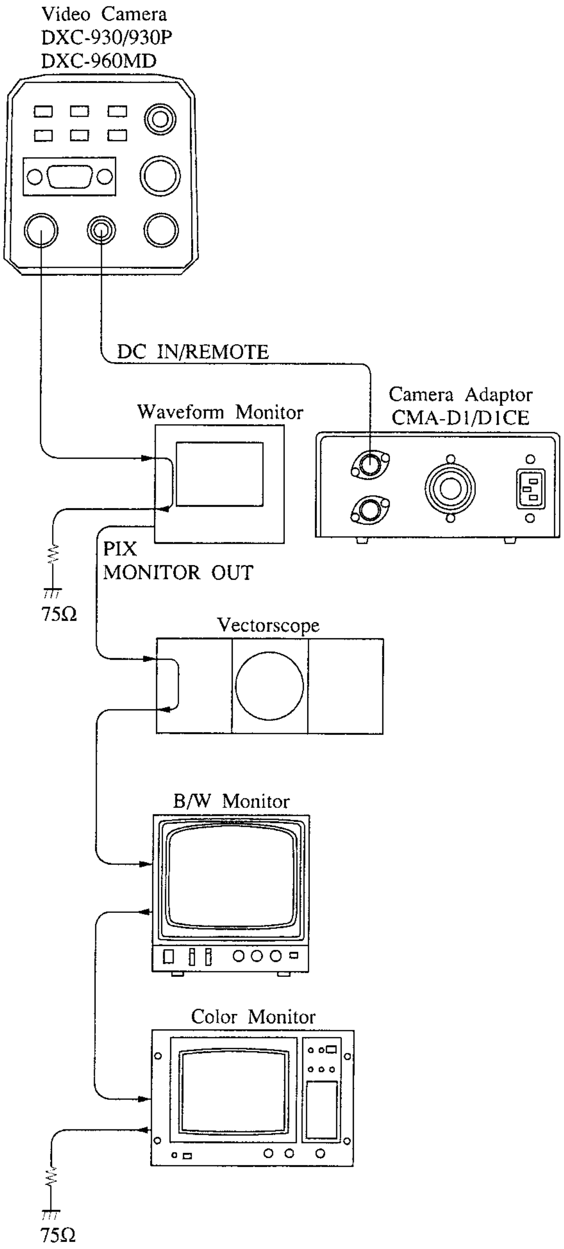


J-6097-120-A	Extension board EX-329



Commercial equipment and fixture
- Dual Trace Oscilloscope
- Vectorscope
- Waveform Monitor
- Frequency Counter
- Digital Voltmeter
- B/W Monitor
- Color Monitor
- Bayonet type lens with manual iris function
  - 1/2-inch lens
  - 2/3-inch lens + LO-32BMT lens mount adaptor

5-1-2. Connection

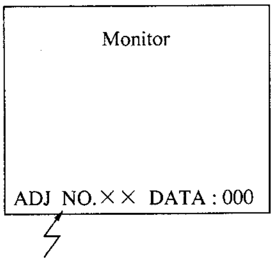

Video Camera
DXC-930/930P
DXC-960MD
DC IN/REMOTE
Camera Adaptor
CMA-D1/D1CE
Waveform Monitor
PIX
MONITOR OUT
75Ω
Vectorscope
B/W Monitor
Color Monitor
75Ω

5-1-3. How to adjust an electronic control

The DXC-930/DXC-930P/DXC-960MD/XC-009/XC-009P has the electronic controls in addition to the controls that are mounted on the each board for adjustment.
How to adjust an electronic control is shown below.

1. Adjustment mode for an electronic control
   Set the SW1/AT-69 board to ADJ position, and the adjustment mode for an electronic control is put. The address and the data of an electronic control are displayed on the monitor screen.

   This message means that the address is "ADJ NO. XX" and the data is "000".

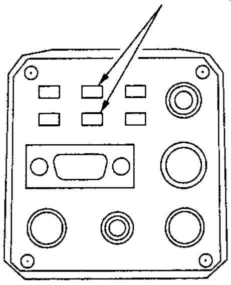


It indicates that data at address XX is 000.

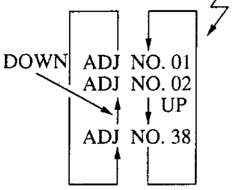
2. Address Selection
   The address that is displayed on the monitor will go up (or down) by pressing the FUNCTION UP (or DOWN) button on the rear panel. When pressing the FUNCTION UP (or DOWN) button continuously, displayed address will change in succession.

   Order of address selection

FUNCTION UP/DOWN buttons



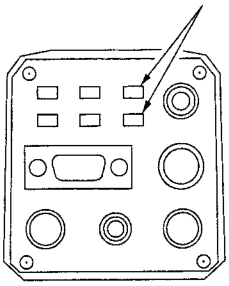
Order to select addresses



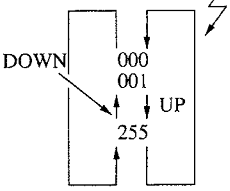
3. Data Selection (Electronic control adjustment)
   The data (adjustment value) that is displayed on the monitor will go up (or down) by pressing the DATA UP (or DOWN) button on the rear panel. By this operation, the adjustment value will change in the same manner that when an ordinary level control is turned.

   Order of data selection

DATA UP/DOWN buttons



Order to select addresses

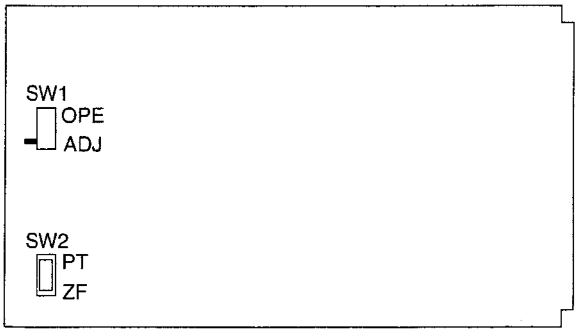


5-1-4. Switch Setting Before Adjustment

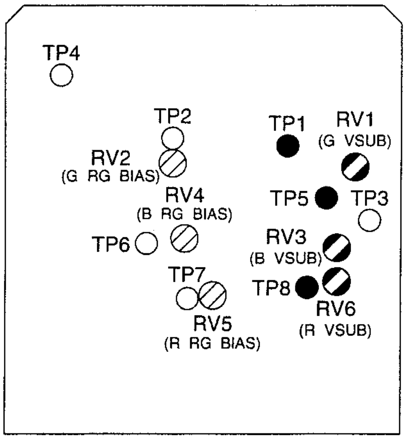
Menu Screen:
GAIN: STEP
STEP 0 dB
C. STEP: 3200K
WHT. BAL: MANU
R. GAIN +00
B. GAIN +00
CCD IRIS: OFF
SHUTTER: OFF

AT-69 board:
SW1 (ADJ/OPE): ADJ

Note: After the adjustment, set the SW1 (ADJ/OPE) /AT-69 board to OPE position.



AT-69 BOARD (B SIDE)



TG-102/102P BOARD (A SIDE)

5-2. ADJUSTMENT

5-2-1. G/R/B V Substrate Voltage Adjustment

Note: Before replacing any controls on TG-102/102P board or TG-102/102P board itself, be sure to measure voltage at following test points in advance.
After replacement is completed, adjust voltage at each test point for the measured value.
If the voltage can not be adjusted to the measured value, adjust for following specifications.

Equipment: Digital voltmeter

Preparation:

- Disconnect the PR-158/158P, IF-354/354P and AT-69 board from the camera unit.

Adjustment Procedure:

- Perform adjustment in order of G, R and B channels as shown below.

Note: Before replacing any controls on TG-102/102P board or TG-102/102P board itself, be sure to measure voltage at following test points in advance.
After replacement is completed, adjust voltage at each test point for the measured value.
If the voltage can not be adjusted to the measured value, adjust for following specifications.

TG-102/102P board

	Test point (GND: TP3)	Adjusting point	Specification
G-ch	TP1	⊘RV1	12.0±0.1 V dc
R-ch	TP8	⊘RV6	
B-ch	TP5	⊘RV3	

Note: After the adjustment, return the PR-158/158P, IF-354/354P and AT-69 board to their normal position.

5-2-2. G/R/B PGL Voltage Adjustment

Note: Before replacing any controls on TG-102/102P board or TG-102/102P board itself, be sure to measure voltage at following test points in advance.
After replacement is completed, adjust voltage at each test point for the measured value.
If the voltage can not be adjusted to the measured value, adjust for following specifications.

Equipment: Digital voltmeter

Preparation:

- Disconnect the PR-158/158P, IF-354/354P and AT-69 board from the camera unit.

Adjustment Procedure:

- Perform adjustment in order of G, R and B channels as shown below.

Note: Before replacing any controls on TG-102/102P board or TG-102/102P board itself, be sure to measure voltage at following test points in advance.
After replacement is completed, adjust voltage at each test point for the measured value.
If the voltage can not be adjusted to the measured value, adjust for following specifications.

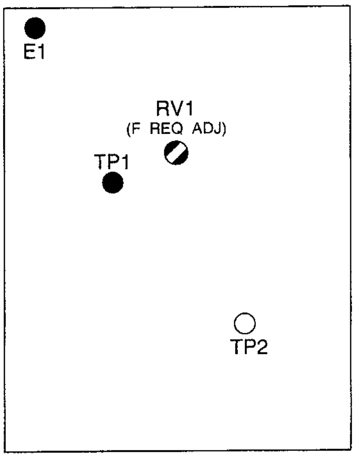
TG-102/102P board

	Test point (GND: TP4)	Adjusting point	Specification
G-ch	TP2	⊘RV2	2.0±0.1 V dc
R-ch	TP7	⊘RV5	
B-ch	TP6	⊘RV4	

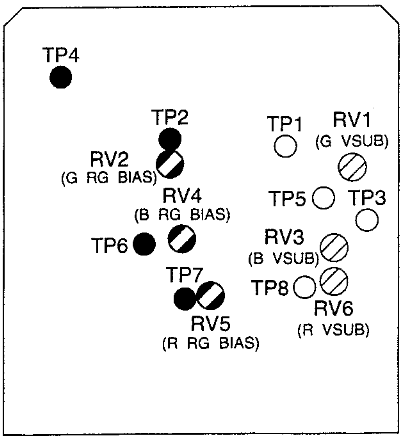
Note: After the adjustment, return the PR-158/158P, IF-354/354P and AT-69 board to their normal position.

5-2-3. Subcarrier Frequency Adjustment

Equipment:	Frequency counter
To be extended:	SG-194/194P board
Test point:	TP1 (GND: E1) /SG-194 (194P) board
Adj. point:	⊘RV1/SG-194 (194P) board
Spec.:	3,579,545 ± 10 Hz (For NTSC) 4,433,619 ± 10 Hz (For PAL)



SG-194 /194P BOARD (B SIDE)



TG-102/102P BOARD (A SIDE)

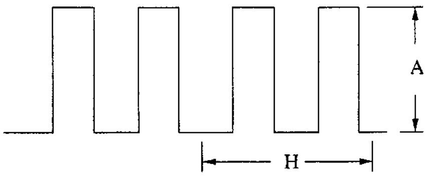
5-2-4. Color Bars Adjustment

Equipment: Oscilloscope, Waveform monitor
To be extended: PR-158/158P board
Preparation:

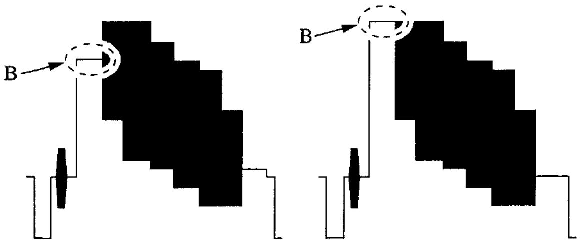
- DISPLAY/BARS button → "BARS"

Adjustment Procedure:

1. Adjust ⊘RV14/PR board so that the video level "A" at TP9 (GND: E1) on the PR board is 750 ± 10 mV p-p (PAL; 1.0 ± 0.01 V p-p).

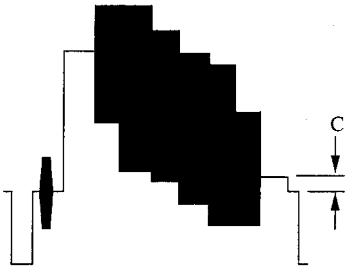


2. Adjust ⊘RV15 and ⊘RV13/PR board so that the carrier leakage "B" at the gray level portion (PAL; white level portion) of VIDEO OUT waveform is minimum.

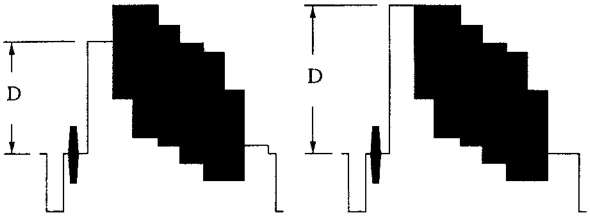


(NTSC) (PAL)

3. (UC model only) Adjust "ADJ NO. 7" of the electronic control so that the set up level "C" at VIDEO OUT is 7.5 ± 1 IRE.

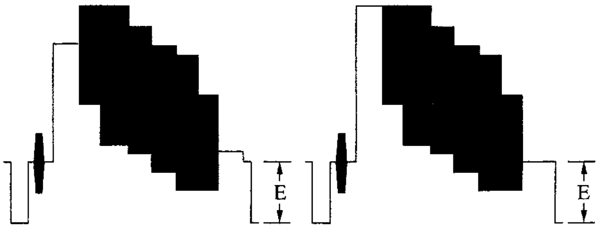


4. Adjust "ADJ NO. 5" of the electronic control so that the gray level "D" (PAL; white level "D") at VIDEO OUT is 75 ± 2 IRE (PAL; 700 ± 10 mV).



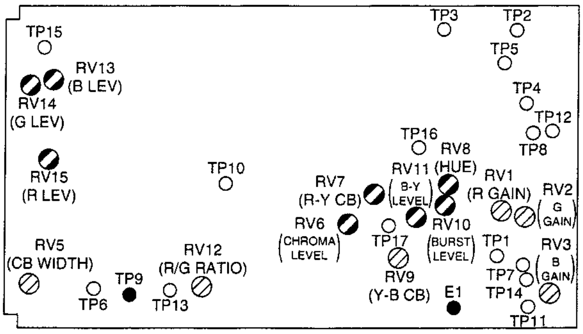
(NTSC) (PAL)

5. Adjust "ADJ NO. 6" of the electronic control so that the SYNC level "E" at VIDEO OUT is 40 ± 2 IRE (300 ± 10 mV).



(NTSC) (PAL)

6. Repeat steps 2 to 5 several times until the specification are met.


TP15
RV13
(B LEV)
RV14
(G LEV)
RV15
(R LEV)
RV5
(CB WIDTH)
TP6
TP9
TP13
RV12
(R/G RATIO)
TP10
TP3
TP2
TP5
TP4
TP12
TP8
TP16
RV8
(HUE)
RV11
(B-Y LEVEL)
RV7
(R-Y CB)
RV6
(CHROMA LEVEL)
TP17
RV9
(Y-B CB)
RV10
(BURST LEVEL)
E1
RV1
(R GAIN)
RV2
(G GAIN)
TP1
RV3
(B GAIN)
TP7
TP14
TP11

PR-158/158P BOARD (B SIDE)

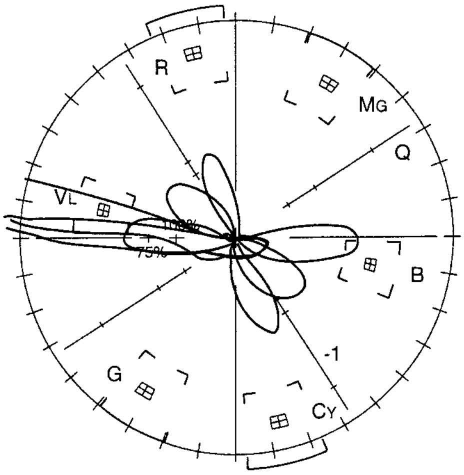
5-2-5. Carrier Balance Adjustment

Equipment: Vectorscope (MAX GAIN)
To be extended: PR-158/158P board
Preparation:
- DISPLAY/BARS button → "BARS"

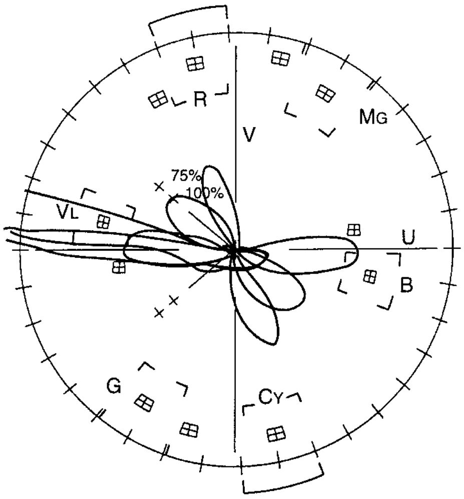
Test point: VIDEO OUT connector /rear panel
Adj. point: ⊘RV7, ⊘RV9/PR-158 (158P) board
Specification:

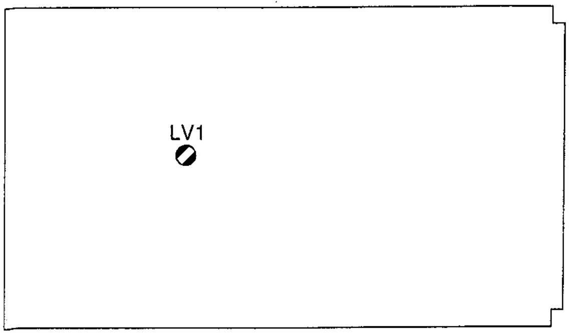
Adjust RV7 and RV9/PR board so that the beam spot of the white level is located in the center of the vectorscope screen.

[NTSC]



[PAL] (VECTOR NTSC button: ON)





PR-158/158P BOARD (A SIDE)

5-2-6. Color Vector Adjustment

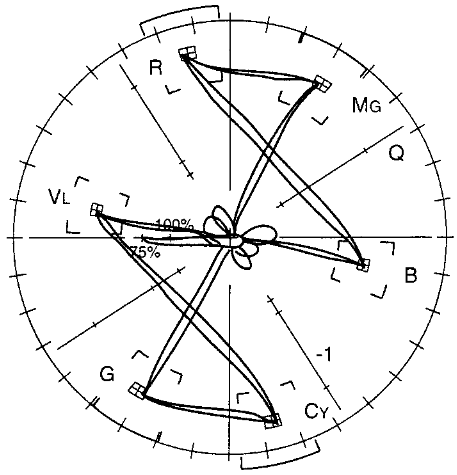
Equipment: Vectorscope
To be extended: PR-158/158P board
Preparation:

1. GAIN switch/vectorscope → 75% CAL
2. Adjust the PHASE control so that the beam spot of the burst is set to the 75% axis.
3. DISPLAY/BARS button → BARS

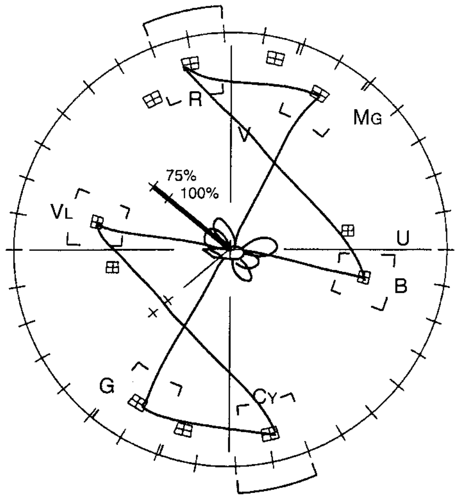
Test point: VIDEO OUT connector/rear panel
Adjustment Procedure:

1. Adjust ⊘RV10/PR board so that the burst spot is located at 75% scale mark on the vectorscope screen.
2. Adjust ⊘RV6, ⊘RV8,⊘RV11 and ⊘LV1/PR board so that all the chroma spots are located on the specified scale point on the vectorscope screen.
3. Repeat steps 1 and 2 alternately until the specification are met.

[NTSC]



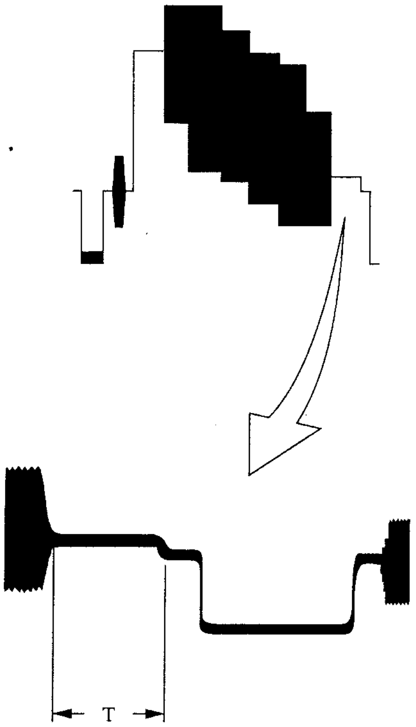
[PAL] (VECTOR NTSC button: ON)

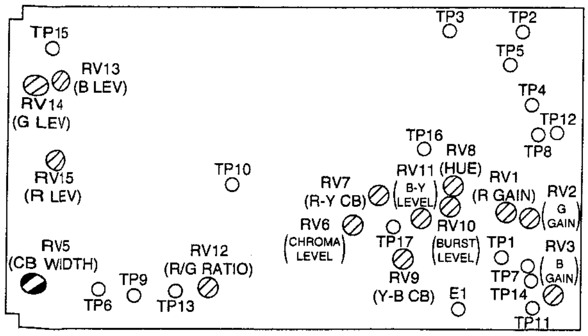


5-2-7. Color-Bar Width Adjustment

Equipment: Oscilloscope
To be extended: PR-158/158P board
Preparation:
- DISPLAY/BARS button → "BARS"

Test point: VIDEO OUT connector/rear panel
Adj. point: ⊘RV5/PR-158 (158P) board
Specification: T = 4.0 ± 0.2 µs (NTSC)
T = 5.3 ± 0.2 µs (PAL)




TP15
RV13
(B LEV)
RV14
(G LEV)
RV15
(R LEV)
RV5
(CB WIDTH)
TP6
TP9
RV12
(R/G RATIO)
TP13
TP10
TP3
TP2
TP5
TP4
TP12
TP8
TP16
RV8
(HUE)
RV11
(B-Y LEVEL)
RV7
(R-Y CB)
RV1
(R GAIN)
RV2
(G GAIN)
RV6
(CHROMA LEVEL)
TP17
RV10
(BURST LEVEL)
TP1
RV3
(B GAIN)
RV9
(Y-B CB)
E1
TP7
TP14
TP11

PR-158/158P BOARD (B SIDE)

5-2-8. Video Level Adjustment

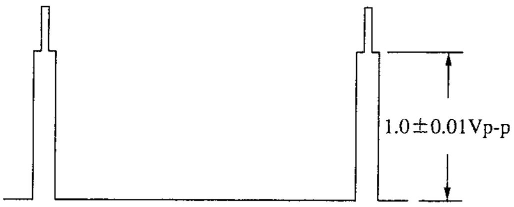
Subject: Overall white, Grayscale chart
Equipment: Oscilloscope
To be extended: PR-158/158P board
Adjustment Procedure:

1. Subject: Overall white
   Lens iris → Open
2. C. TEMP. (Menu on the monitor screen) → 5600 K
   FLD/FRM (Menu on the monitor screen) → FLD
3. Adjust Electronic control as shown below.

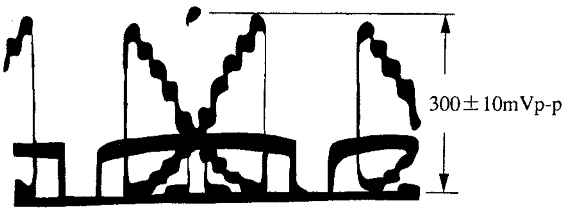
Test point /PR-158 board	Adjusting point/ electronic control	Specification
TP4 (GND: E1)	"ADJ No. 34"	1.0±0.01 V p-p

4. C. TEMP. (Menu on the monitor screen) → 3200 K
5. Adjust Electronic control as shown below.

Test point /PR-158 board	Adjusting point/ electronic control	Specification
TP12 (GND: E1)	"ADJ No. 35"	1.0±0.01 V p-p



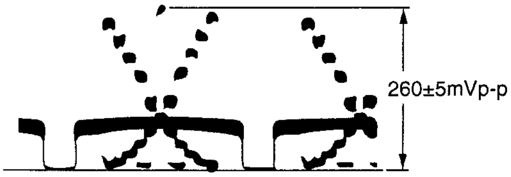
6. Subject: Grayscale chart
7. Adjust the lens iris so that the video level at TP7 (GND: E1) on the PR board is 300 ± 10 mV p-p.



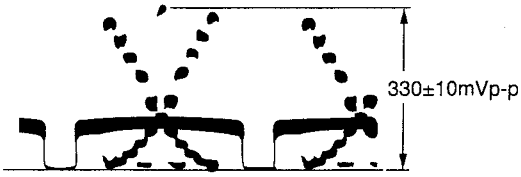
8. Set the data of "ADJ No. 10" (Electronic control) to 50.
9. Set the data of "ADJ No. 12" (Electronic control) to 100.

10. Perform adjustment in order of G, R and B channels as shown below.

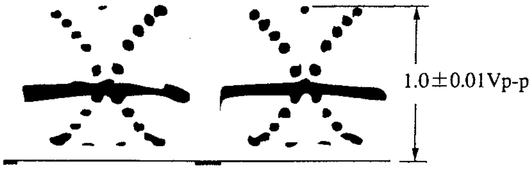
	Test point /PR-158 board	Adjusting point /PR-158 board	Specification
G	TP2 (GND: E1)	⊘RV2	260±5m V p-p
R	TP3 (GND: E1)	⊘RV1	
B	TP5 (GND: E1)	⊘RV3	



11. Adjust the "ADJ NO. 12" of the electronic control so that the video level at TP2 (GND: E1) on the PR board is 330 ± 10 mVp-p.

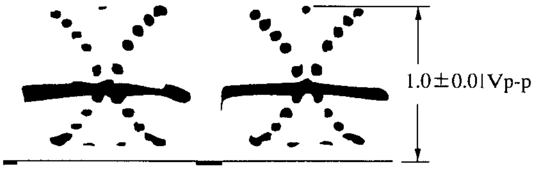


12. Adjust electronic control "ADJ No. 10" so that the value is raised, and stop it just before the video level goes up.
13. Adjust the "ADJ NO. 13" of the electronic control so that the video level at TP9 (GND: E1) on the PR board is 1.0 ± 0.01 Vp-p.

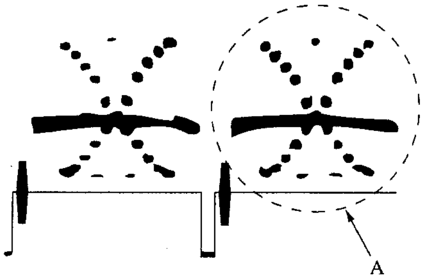


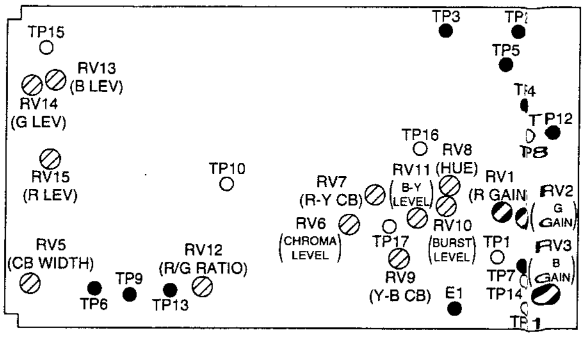
14. Perform adjustment in order of R and B channels as shown below.

	Test point /PR-158 board	Adjusting point/ electronic control	Specification
R	TP6 (GND: E1)	"ADJ No. 14"	1.0±0.01 V p-p
B	TP13 (GND: E1)	"ADJ No. 15"	



15. Repeat steps 13 and 14 alternately until a portion A of the carrier leakage at VIDEO OUT is minimum on the waveform monitor screen.




TP15
RV13 (B LEV)
RV14 (G LEV)
RV15 (R LEV)
RV5 (CB WIDTH)
TP6
TP9
TP13
RV12 (R/G RATIO)
TP10
RV7 (R-Y CB)
RV6 (CHROMA LEVEL)
TP16
RV11 (B-Y LEVEL)
RV8 (HUE)
TP17
RV10 (BURST LEVEL)
RV9 (Y-B CB)
E1
TP3
TP
TP5
TP4
TP12
TP8
RV1 (R GAIN
RV2 (G GAIN)
TP1
RV3 (B GAIN)
TP7
TP14
TP1

PR-158/158P BOARD (B SIDE)

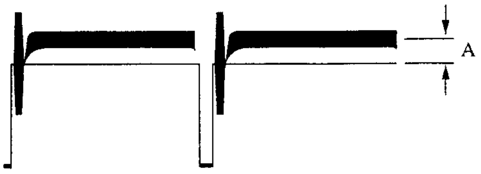
5-2-9. Black Set Adjustment

Equipment: Waveform monitor, Vectorscope
To be extended: PR-158/158P board
Preparation:

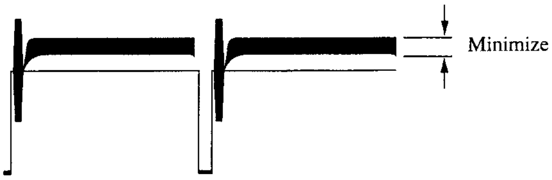
- Lens iris → Close

Adjustment Procedure:

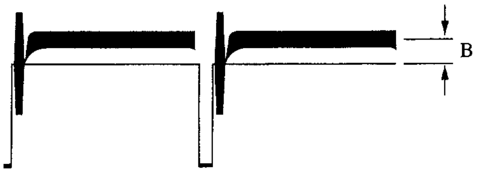
1. Adjust "ADJ NO. 20" of the electronic control so that the video level "A" at VIDEO OUT is 10.5 ± 2 IRE (PAL; 3 ± 1 %).



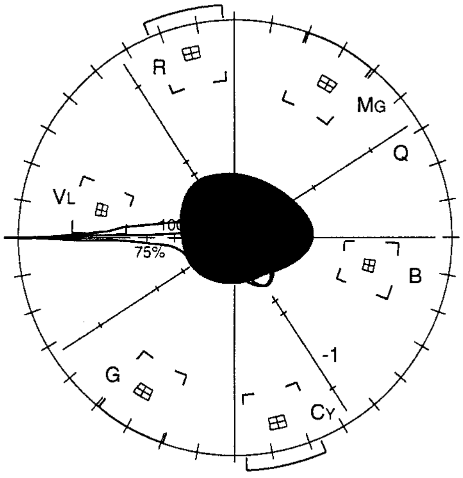
2. Adjust "ADJ NO. 19" and "ADJ NO. 21" of the electronic control alternately so that the carrier leakage at VIDEO OUT is minimum.



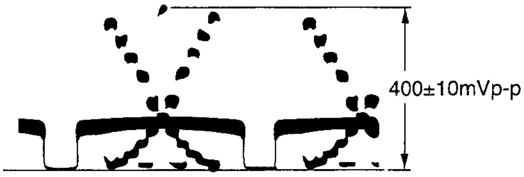
3. Repeat steps 1 and 2 alternately until the specifications are met.
4. GAIN switch → 18 dB
5. Adjust "ADJ NO. 2" of the electronic control so that the video level "B" at VIDEO OUT is 10.5 ± 2 IRE (PAL; 3 ± 1 %).



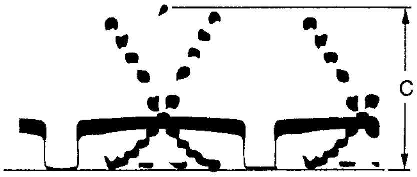
6. Adjust "ADJ NO. 1" and "ADJ NO. 3" of the electronic control alternately so that the beam spot of black level is located in center on vectorscope screen.



7. Repeat steps 5 and 6 alternately until the specifications are met.
8. Adjust the lens iris so that the video level at TP2 (GND: E1) /PR board is 400 ± 10 mVp-p.



9. Adjust "ADJ NO. 9" of the electronic control so that the video level "C" at TP2 (GND: E1) /PR board is set just before the level goes down.



Note: After the adjustment, set the switch as shown below.
GAIN switch → 0dB

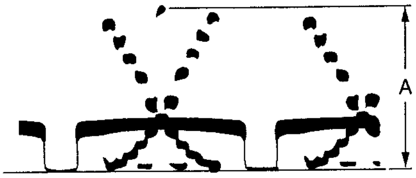
5-2-10. GAIN AGC Adjustment

Subject: Grayscale chart
Equipment: Oscilloscope
To be extended: PR-158/158P board
Preparation:

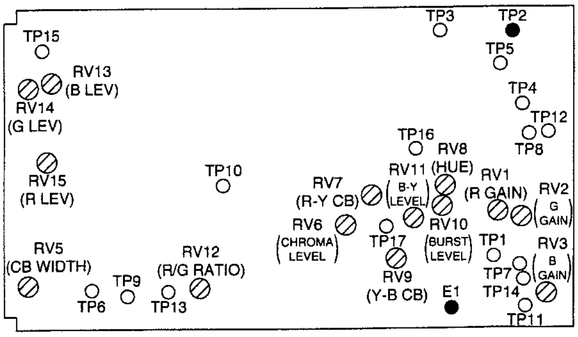
- Lens iris → F8
- GAIN (Menu on the monitor screen) → AGC

Adjustment Procedure:

- Adjust "ADJ NO. 11" of the electronic control so that the video level "A" at TP2 (GND: E1)/PR board is 300 ± 5 mV p-p.



Note: After the adjustment, set the switch as follows.
GAIN (Menu on the monitor screen) → STEP

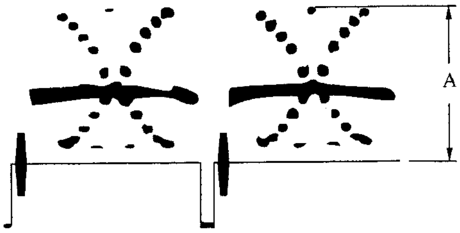

TP15
RV13
(B LEV)
RV14
(G LEV)
RV15
(R LEV)
RV5
(CB WIDTH)
TP6
TP9
RV12
(R/G RATIO)
TP13
TP10
RV7
(R-Y CB)
RV6
(CHROMA LEVEL)
RV11
(B-Y LEVEL)
TP17
RV9
(Y-B CB)
E1
TP16
RV8
(HUE)
RV10
(BURST LEVEL)
TP3
TP2
TP5
TP4
TP12
TP8
RV1
(R GAIN)
RV2
(G GAIN)
TP1
TP7
TP14
TP11
RV3
(B GAIN)

PR-158/158P BOARD (B SIDE)

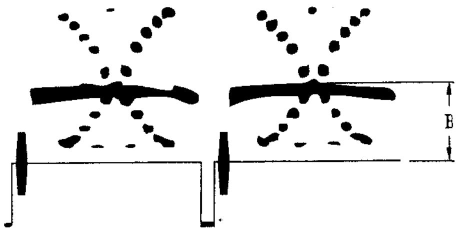
5-2-11. Cross point Adjustment

Subject: Grayscale chart
Equipment: Waveform monitor
To be extended: PR-158/158P board
Adjustment Procedure:

1. Adjust the lens iris so that the video level "A" at VIDEO OUT is 100 ± 2 IRE (PAL; 700 ± 10 mV).



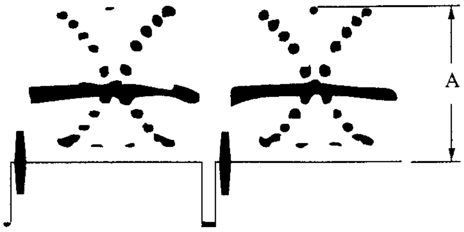
2. Adjust "ADJ NO. 22" of the electronic control so that the cross point level "B" at VIDEO OUT is 56 ± 1 IRE (PAL; 360 ± 5 mV).



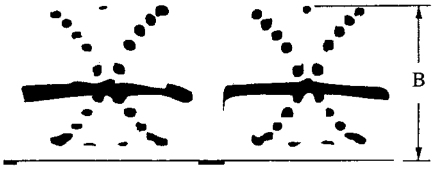
5-2-12. White Level Adjustment

Subject: Grayscale chart
Equipment: Waveform monitor
To be extended: PR-158/158P board
Adjustment Procedure:

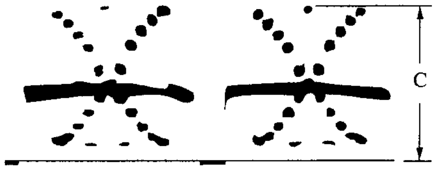
1. Adjust the lens iris so that the video level "A" at VIDEO OUT is 100 ± 2 IRE (PAL; 700 ± 10 mV).



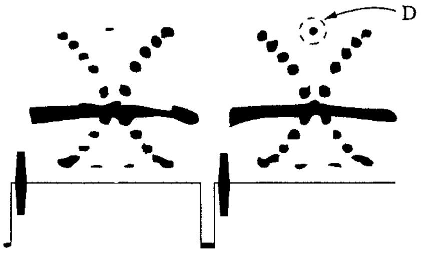
2. Adjust "ADJ NO. 23" of the electronic control just before where the video level "B" at TP9 (GND: E1) /PR board decreases less than 100 IRE (PAL; 700 mV).



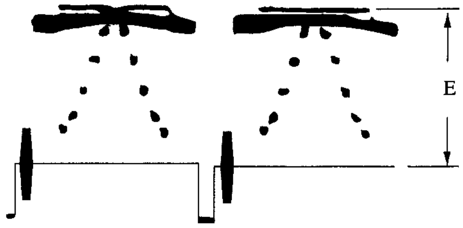
3. Adjust "ADJ NO. 17" of the electronic control just before where the video level "C" at TP9 (GND: E1) /PR board decreases than 100 IRE (PAL; 700 mV).



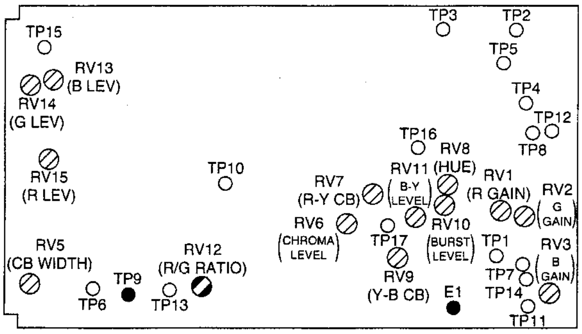
4. Lens iris → F4
5. Adjust "ADJ NO. 16" and "ADJ NO. 18" of the electronic control so that the carrier leakage "D" of white level portion at VIDEO OUT is minimum.



6. Lens iris → F2.8 or F2
7. Adjust "ADJ NO. 8" of the electronic control so that the white clip level "E" at VIDEO OUT is 115 ± 2 IRE (PAL; 805 ± 10 mV).



8. Set the data of "ADJ No. 24" (Electronic control) to 255.


TP15
RV13
(B LEV)
RV14
(G LEV)
RV15
(R LEV)
TP10
RV5
(CB WIDTH)
TP6
TP9
RV12
(R/G RATIO)
TP13
TP3
TP2
TP5
TP4
TP12
TP8
TP16
RV8
(HUE)
RV11
(B-Y LEVEL)
RV7
(R-Y CB)
RV6
(CHROMA LEVEL)
TP17
RV10
(BURST LEVEL)
RV9
(Y-B CB)
E1
RV1
(R GAIN)
RV2
(G GAIN)
TP1
RV3
(B GAIN)
TP7
TP14
TP11

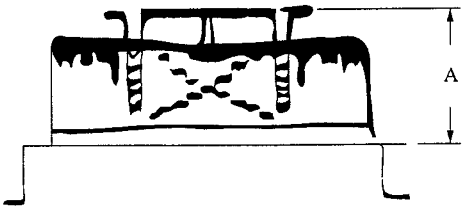
PR-158/158P BOARD (B SIDE)

5-2-13. Aperture Detail Adjustment

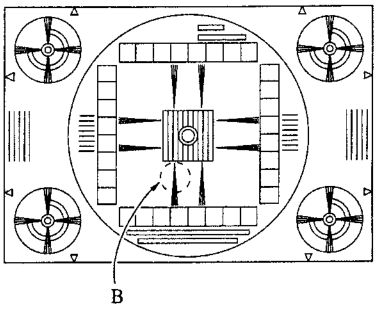
Subject: Resolution chart, Grayscale chart
Equipment: B/W monitor screen, Waveform monitor, Oscilloscope

Adjustment Procedure:

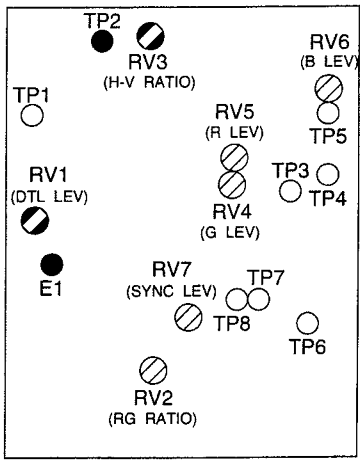
1. Subject: Resolution chart
2. To be extended: PR-158/158P board
3. Adjust the lens iris so that the video level "A" at VIDEO OUT is 100 ± 2 IRE (PAL; 700 ± 10 mV).



4. Set the data of "ADJ No. 27" (Electronic control) to 60.
   Set the data of "ADJ No. 25" (Electronic control) to 100.
   Set the data of "ADJ No. 26" (Electronic control) to 151.
5. Adjust ⊘ RV12/PR board so that the highest resolution at portion "B" is obtained, observing the B/W monitor.

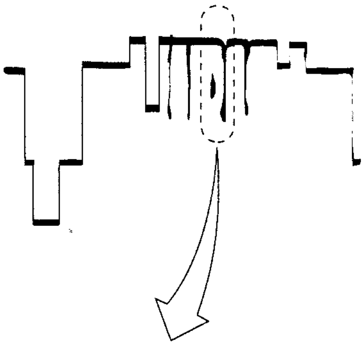


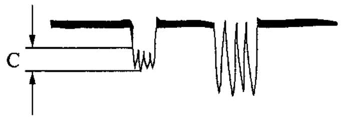
6. Select the 730 to 740 TV lines of the resolution chart with the "LINE SELECTOR" of the waveform monitor.



IF-354/354P BOARD (A SIDE)

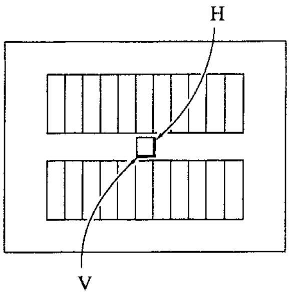
7. Adjust "ADJ NO. 25" of the electronic control so that the modulation degree "C" is from 8 to 10 IRE (PAL; 56 to 70 mV).





8. Subject: Grayscale chart
9. To be extended: IF-354/354P board
10. Adjust ⊘ RV1/IF-354 (354P) board so that only V detail signal having appears at TP2 (GND: E1) /IF board.
11. Observing the white portion on the grayscale chart and adjust ⊘ RV3/IF board so that the overlapping detail ratio of H to V on the grayscale is 2 to 1 on the monitor screen.

(Monitor)

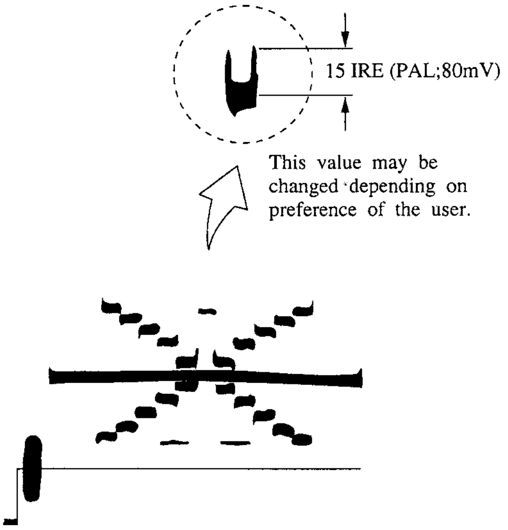


H : V = 2 : 1

12. Set the data of "ADJ No. 27" (Electronic control) to 120.
    Set the data of "ADJ No. 28" (Electronic control) to 120.

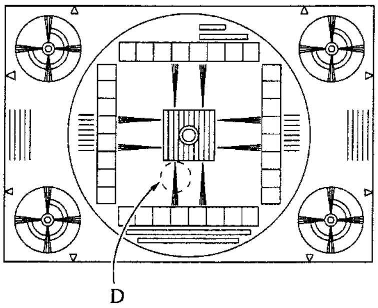
13. Adjust "ADJ NO. 28" of the electronic control so that the spikes (detail level during H period) at both ends of white level are 15 IRE (PAL; 80 mV).

    This level can be changed according to the users' requirements.


15 IRE (PAL;80mV)

This value may be changed depending on preference of the user.

14. Subject: Resolution chart
15. Adjust ⊘RV2/IF board so that the highest resolution of portion "D" portion is obtained, observing the B/W monitor.



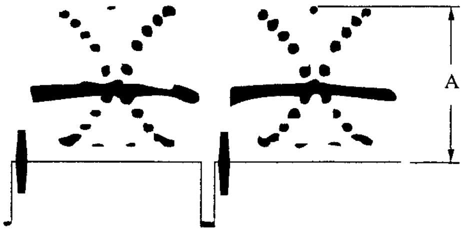
5-2-14. IRIS Adjustment

Subject: Grayscale chart
Equipment: Waveform monitor
To be extended: IF-354/354P board
Preparation:

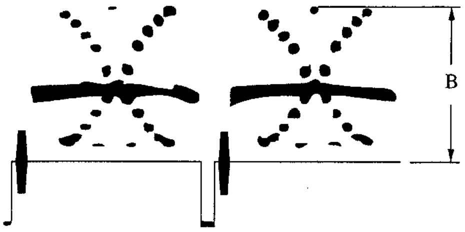
- IRIS AUTO/MANU → "AUTO"

Adjustment Procedure:

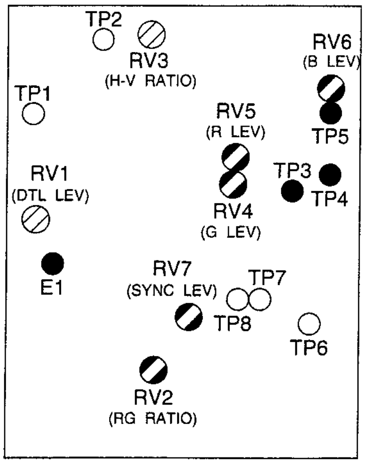
1. Adjust "ADJ NO. 30" of the electronic control so that the video level "A" at VIDEO OUT is 100 ± 2 IRE (PAL; 700 ± 10 mV).



2. IRIS AUTO/MANU → MANU
   Lens iris → F2.8
   CCD IRIS (Menu on the monitor screen) → ON
3. Adjust "ADJ NO. 32" of the electronic control so that the video level "B" at VIDEO OUT is 105 ± 2 IRE (PAL; 735 ± 10 mV).



4. CCD IRIS (Menu on the monitor screen) → OFF
5. Set the data of "ADJ No. 37" (Electronic control) to 100.
   Set the data of "ADJ No. 38" (Electronic control) to 003.


TP2
RV3
(H-V RATIO)
RV6
(B LEV)
TP1
RV5
(R LEV)
TP5
RV1
(DTL LEV)
TP3
TP4
RV4
(G LEV)
E1
RV7
(SYNC LEV)
TP7
TP8
TP6
RV2
(RG RATIO)

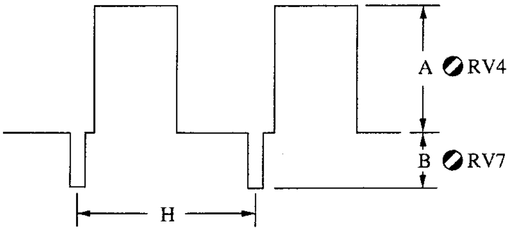
IF-354/354P BOARD (A SIDE)

5-2-15. G OUT Level Adjustment

Equipment: Oscilloscope
To be extended: IF-354/354P board
Preparation:
- Confirm that the "G. SYNC" (Menu on the monitor screen) is set to "ON".
- DISPLAY/BARS button → "BARS"
- SW7 (SYNC/SG1) /CN-579 (580) board → "SYNC"

Test point: TP4 (GND: E1) /IF-354 (354P) board
Specification: (75-ohm termination)
A = 714 ± 10 mV (For NTSC)
A = 700 ± 10 mV (For PAL)
⊘RV4/IF-354 (354P) board

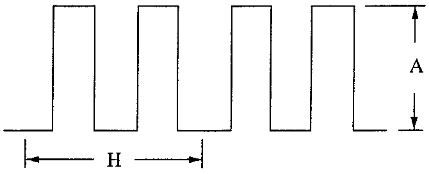
B = 286 ± 5 mV (For NTSC)
B = 300 ± 5 mV (For PAL)
⊘RV7/IF-354 (354P) board



5-2-16. R OUT Level Adjustment

Equipment: Oscilloscope
To be extended: IF-354/354P board
Preparation:
- DISPLAY/BARS button → "BARS"

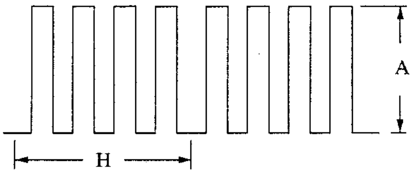
Test point: TP3 (GND: E1)/IF-354 (354P) board
Adj. point: ⊘RV5/IF-354 (354P) board
Specification: (75-ohm termination)
NTSC; A = 714 ± 10 mV
PAL; A = 700 ± 10 mV



5-2-17. B OUT Level Adjustment

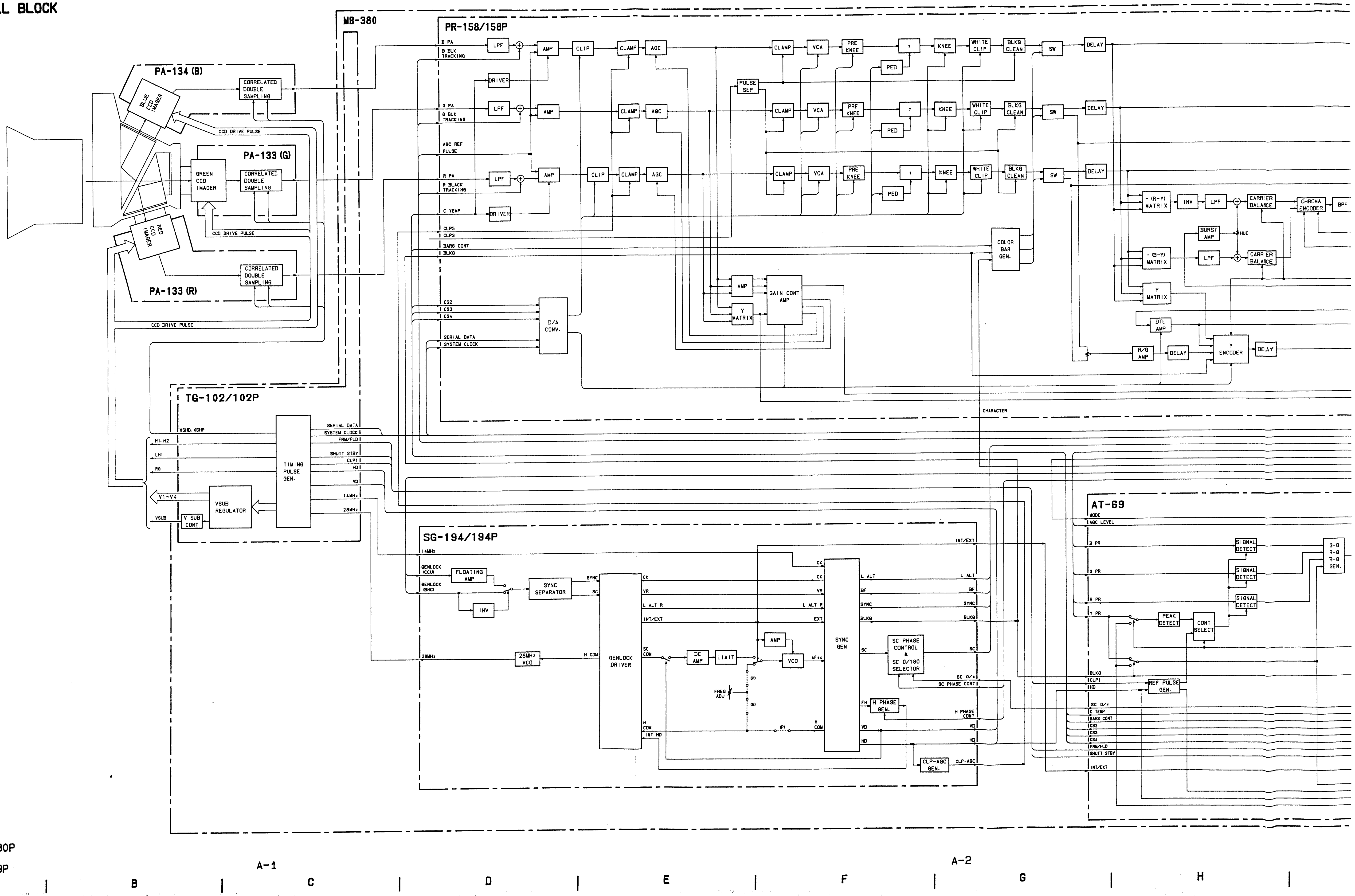
Equipment: Oscilloscope
To be extended: IF-354/354P board
Preparation:
- DISPLAY/BARS button → "BARS"

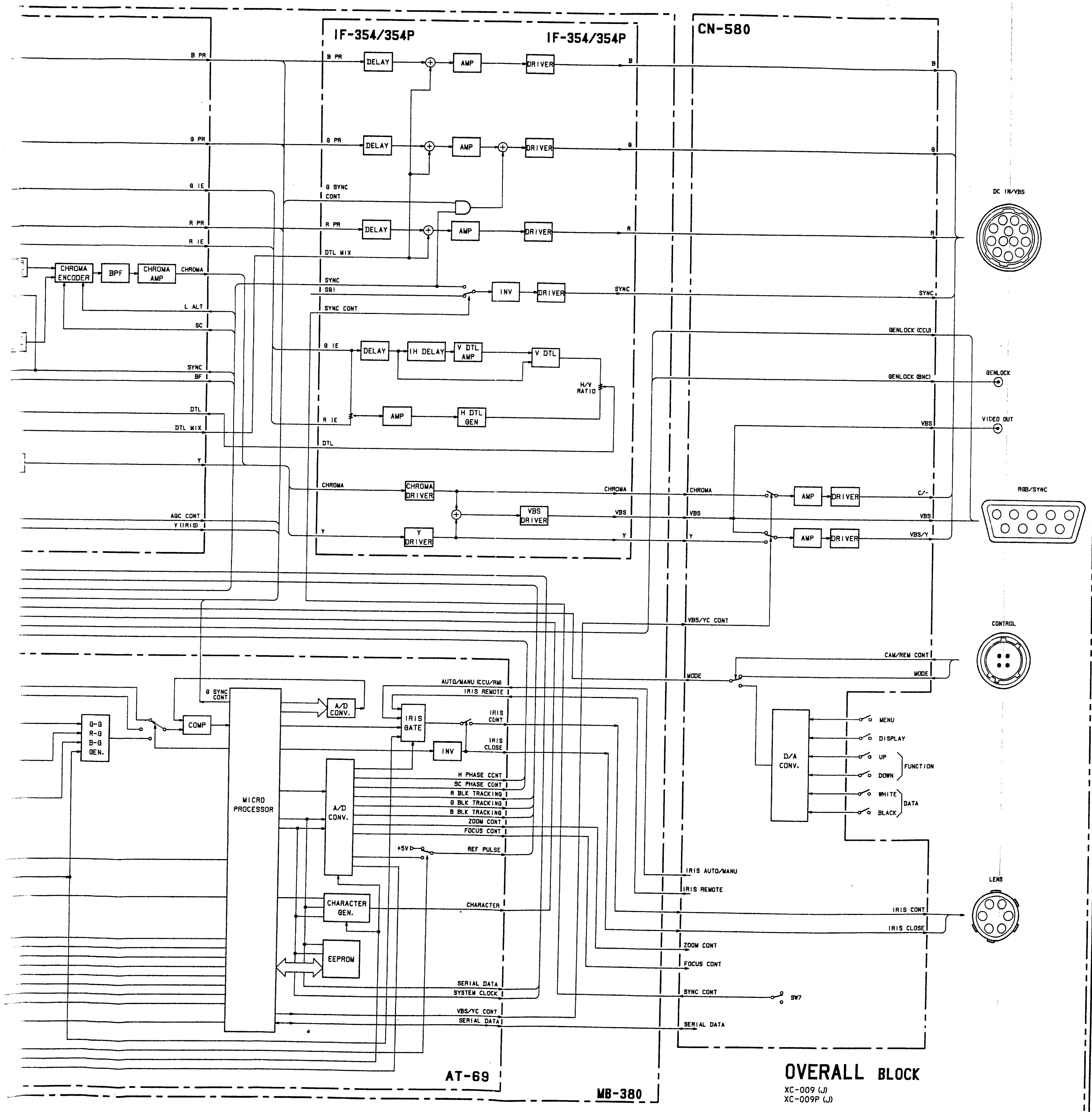
Test point: TP5 (GND: E1)/IF-354 (354P) board
Adj. point: ⊘RV6/IF-354 (354P) board
Specification: (75-ohm termination)
NTSC; A = 714 ± 10 mV
PAL; A = 700 ± 10 mV



SECTION A
BLOCK DIAGRAMS

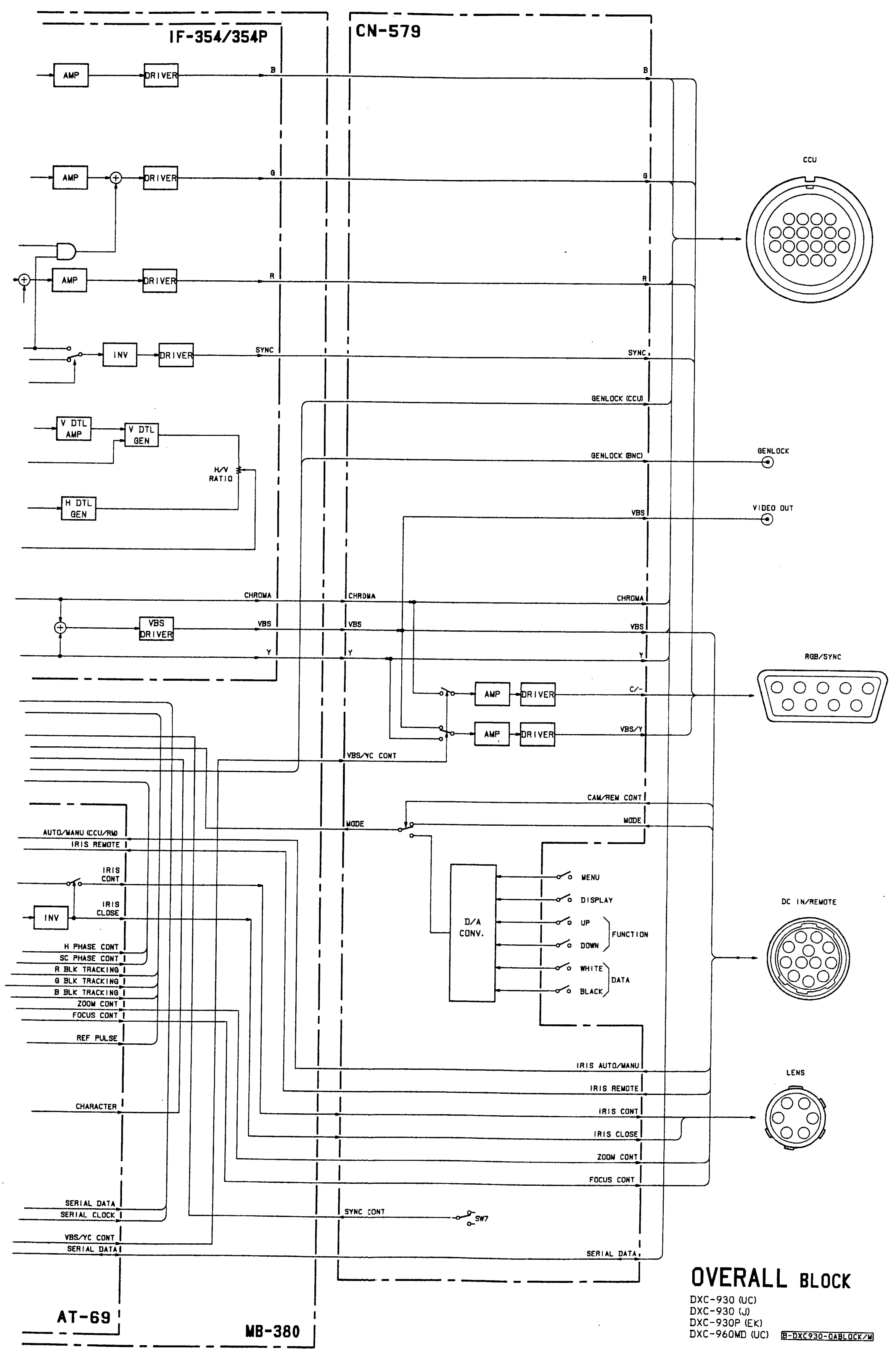
OVERALL BLOCK


MB-380
PR-158/158P
PA-134 (B)
BLUE CCD IMAGER
CORRELATED DOUBLE SAMPLING
CCD DRIVE PULSE
PA-133 (G)
GREEN CCD IMAGER
PA-133 (R)
RED CCD IMAGER
B PA
B BLK TRACKING
G PA
G BLK TRACKING
AGC REF PULSE
R PA
R BLACK TRACKING
C TEMP
CLP5
CLP3
BARS CONT
BLKG
CS2
CS3
CS4
SERIAL DATA
SYSTEM CLOCK
LPF
DRIVER
AMP
CLIP
CLAMP
AGC
PULSE SEP
VCA
PRE KNEE
PED
γ
KNEE
WHITE CLIP
BLKG CLEAN
SW
DELAY
D/A CONV.
Y MATRIX
GAIN CONT AMP
COLOR BAR GEN.
-(R-Y) MATRIX
-(B-Y) MATRIX
INV
CARRIER BALANCE
CHROMA ENCODER
BPF
BURST AMP
HUE
Y MATRIX
DTL AMP
R/G AMP
Y ENCODER
CHARACTER
TG-102/102P
XSHD, XSHP
H1, H2
LH1
RG
V1~V4
VSUB
V SUB CONT
VSUB REGULATOR
TIMING PULSE GEN.
SERIAL DATA
SYSTEM CLOCK
FRM/FLD
SHUTT STBY
CLP1
HD
VD
14MHz
28MHz
SG-194/194P
14MHz
GENLOCK (CCU)
GENLOCK (BNC)
FLOATING AMP
INV
SYNC SEPARATOR
SYNC
SC
28MHz
28MHz VCO
H COM
GENLOCK DRIVER
CK
VR
L ALT R
INT/EXT
SC COM
DC AMP
LIMIT
VCO
4Fsc
FREQ ADJ
(P)
00
H COM
INT HD
SYNC GEN
L ALT
BF
BLKG
SC PHASE CONTROL & SC 0/180 SELECTOR
SC 0/π
SC PHASE CONT
FH
H PHASE GEN.
H PHASE CONT
VD
HD
CLP-AGC GEN.
AT-69
MODE
AGC LEVEL
B PR
G PR
R PR
Y PR
SIGNAL DETECT
PEAK DETECT
CONT SELECT
G-G R-G B-G GEN.
BLKG
CLP1
HD
REF PULSE GEN.
SC 0/π
C TEMP
BARS CONT
CS2
CS3
CS4
FRM/FLD
SHUTT STBY
INT/EXT
A-1
A-2
A
B
C
D
E
F
G
H


IF-354/354P
IF-354/354P
CN-580
B PR
G PR
G IE
R PR
R IE
DELAY
AMP
DRIVER
B
G
R
G SYNC CONT
DTL MIX
SYNC
SBI
SYNC CONT
INV
CHROMA ENCODER
BPF
CHROMA AMP
CHROMA
L ALT
SC
SYNC
BF
DTL
DTL MIX
Y
AGC CONT
Y (IRIS)
1H DELAY
V DTL AMP
V DTL
H/V RATIO
H DTL GEN
CHROMA DRIVER
VBS DRIVER
Y DRIVER
C/-
VBS
VBS/Y
GENLOCK (CCU)
GENLOCK (BNC)
DC IN/VBS
GENLOCK
VIDEO OUT
RGB/SYNC
CONTROL
CAM/REM CONT
MODE
VBS/YC CONT
G-G
R-G
B-G
GEN.
COMP
G SYNC CONT
A/D CONV.
AUTO/MANU (CCU/RM)
IRIS REMOTE
IRIS GATE
IRIS CONT
IRIS CLOSE
MICRO PROCESSOR
H PHASE CONT
SC PHASE CONT
R BLK TRACKING
G BLK TRACKING
B BLK TRACKING
ZOOM CONT
FOCUS CONT
+5V
REF PULSE
CHARACTER GEN.
CHARACTER
EEPROM
SERIAL DATA
SYSTEM CLOCK
VBS/YC CONT
SERIAL DATA
D/A CONV.
MENU
DISPLAY
UP
DOWN
FUNCTION
WHITE
BLACK
DATA
IRIS AUTO/MANU
IRIS REMOTE
IRIS CONT
IRIS CLOSE
LENS
ZOOM CONT
FOCUS CONT
SYNC CONT
SW7
SERIAL DATA
AT-69
MB-380

OVERALL BLOCK

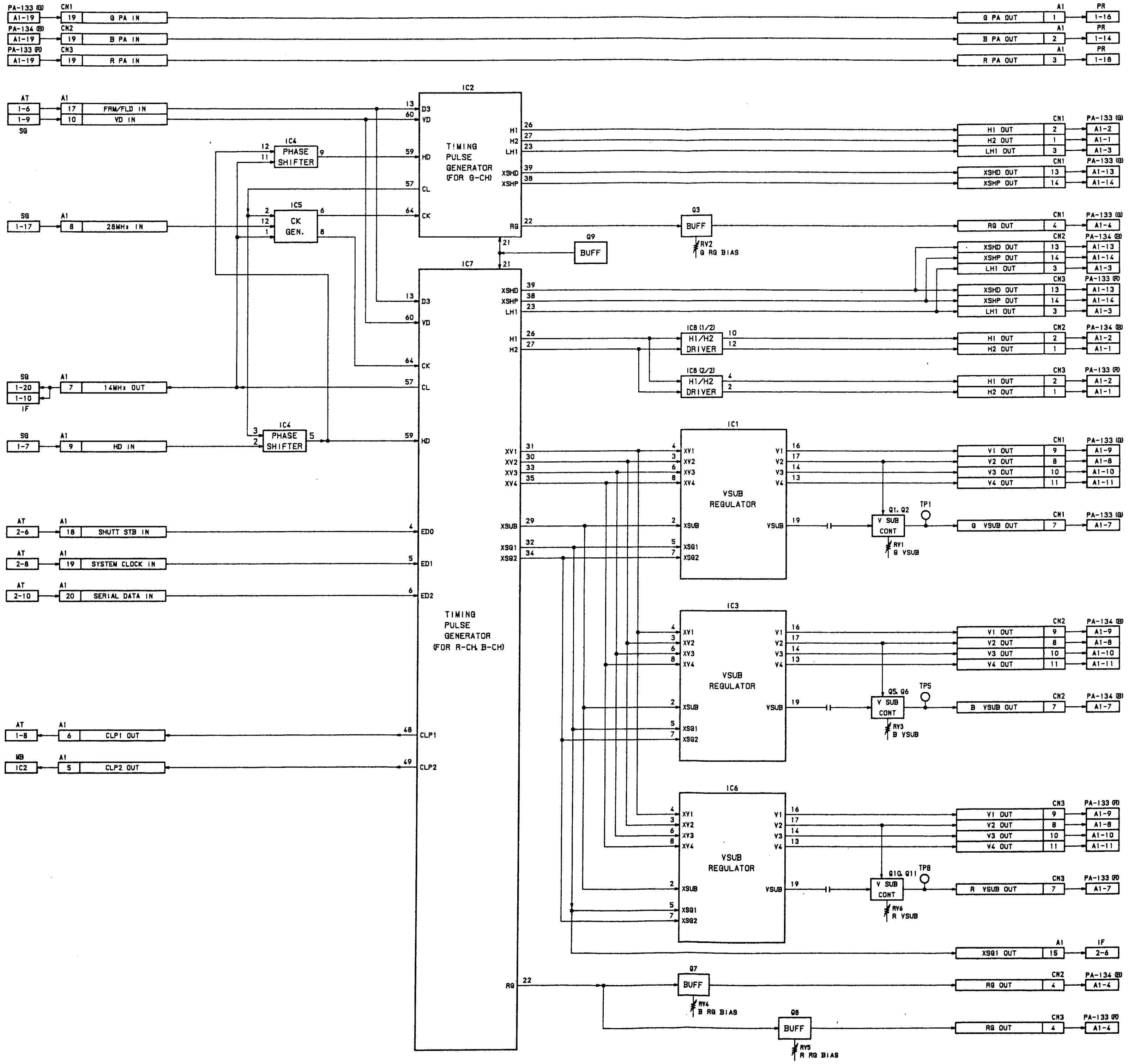
XC-009 (J)
XC-009P (J)


IF-354/354P
CN-579
AMP
DRIVER
B
G
R
INV
SYNC
V DTL AMP
V DTL GEN
H/V RATIO
H DTL GEN
GENLOCK (CCU)
GENLOCK (BNC)
CCU
GENLOCK
VIDEO OUT
VBS
CHROMA
VBS DRIVER
Y
RGB/SYNC
C/-
VBS/Y
VBS/YC CONT
CAM/REM CONT
MODE
AUTO/MANU (CCU/RM)
IRIS REMOTE
IRIS CONT
IRIS CLOSE
D/A CONV.
MENU
DISPLAY
UP
DOWN
FUNCTION
WHITE
BLACK
DATA
DC IN/REMOTE
H PHASE CONT
SC PHASE CONT
R BLK TRACKING
G BLK TRACKING
B BLK TRACKING
ZOOM CONT
FOCUS CONT
REF PULSE
CHARACTER
IRIS AUTO/MANU
IRIS REMOTE
IRIS CONT
IRIS CLOSE
ZOOM CONT
FOCUS CONT
LENS
SERIAL DATA
SERIAL CLOCK
VBS/YC CONT
SERIAL DATA
SYNC CONT
SW7
AT-69
MB-380

OVERALL BLOCK

DXC-930 (UC)
DXC-930 (J)
DXC-930P (EK)
DXC-960MD (UC)
B-DXC930-OABLOCK/M

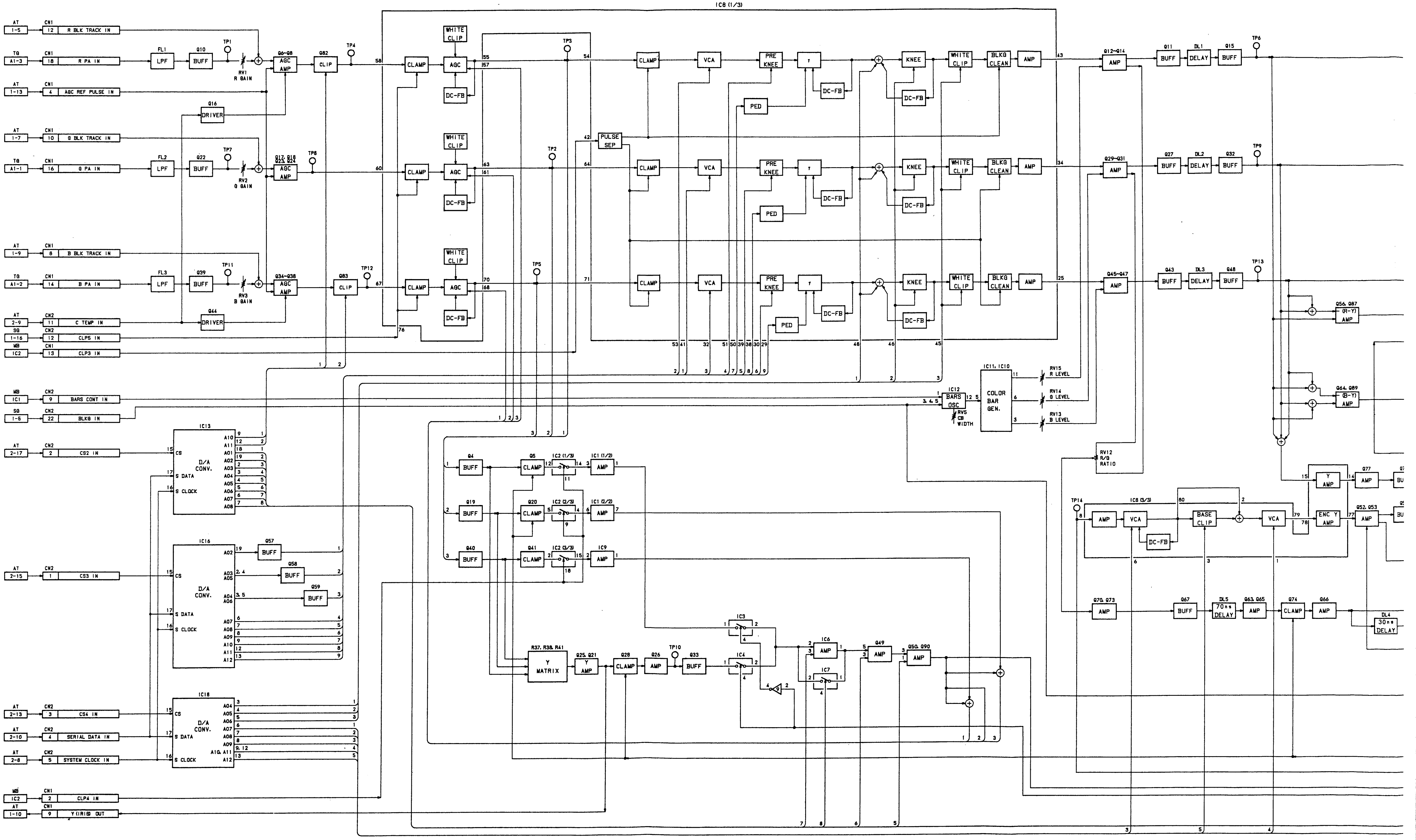
TG-102/102P BLOCK

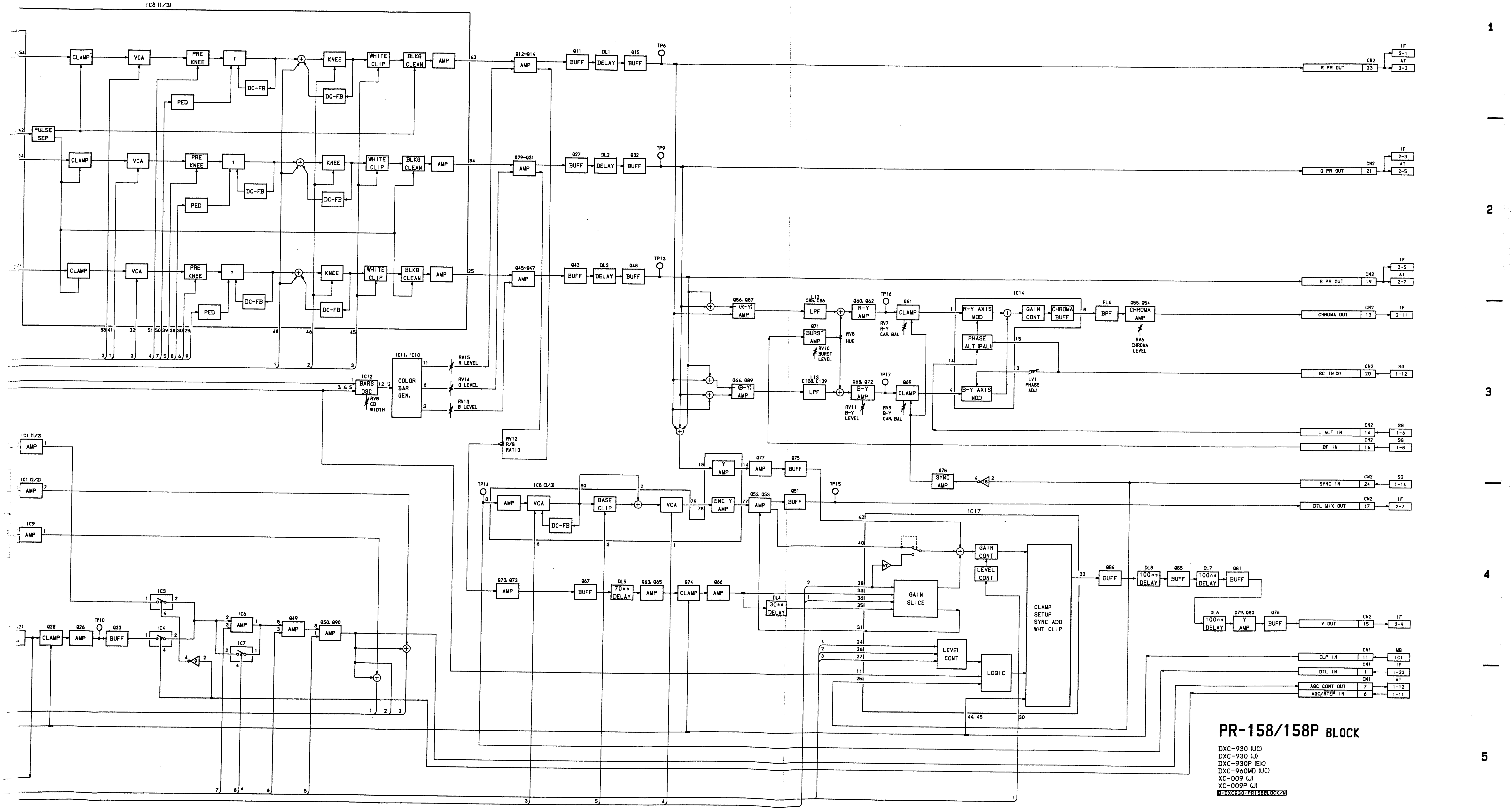

PA-133 (G) A1-19 → CN1 19 G PA IN
PA-134 (B) A1-19 → CN2 19 B PA IN
PA-133 (R) A1-19 → CN3 19 R PA IN
AT 1-6 → A1 17 FRM/FLD IN
SG 1-9 → A1 10 VD IN
SG 1-17 → A1 8 28MHz IN
SG 1-20 / IF 1-10 ← A1 7 14MHz OUT
SG 1-7 → A1 9 HD IN
AT 2-6 → A1 18 SHUTT STB IN
AT 2-8 → A1 19 SYSTEM CLOCK IN
AT 2-10 → A1 20 SERIAL DATA IN
AT 1-8 ← A1 6 CLP1 OUT
MB IC2 ← A1 5 CLP2 OUT
IC4 PHASE SHIFTER
IC5 CK GEN.
IC2 TIMING PULSE GENERATOR (FOR G-CH)
D3 VD HD CL CK H1 H2 LH1 XSHD XSHP RG
Q9 BUFF
Q3 BUFF
RV2 G RG BIAS
IC7 TIMING PULSE GENERATOR (FOR R-CH, B-CH)
ED0 ED1 ED2 CLP1 CLP2 XV1 XV2 XV3 XV4 XSUB XSG1 XSG2
IC8 (1/2) H1/H2 DRIVER
IC8 (2/2) H1/H2 DRIVER
IC1 VSUB REGULATOR
IC3 VSUB REGULATOR
IC6 VSUB REGULATOR
Q1, Q2 V SUB CONT
RV1 G VSUB
TP1
Q5, Q6 V SUB CONT
RV3 B VSUB
TP5
Q10, Q11 V SUB CONT
RV6 R VSUB
TP8
Q7 BUFF
RV4 B RG BIAS
Q8 BUFF
RV5 R RG BIAS
G PA OUT A1 1 → PR 1-16
B PA OUT A1 2 → PR 1-14
R PA OUT A1 3 → PR 1-18
H1 OUT CN1 2 → PA-133 (G) A1-2
H2 OUT CN1 1 → PA-133 (G) A1-1
LH1 OUT CN1 3 → PA-133 (G) A1-3
XSHD OUT CN1 13 → PA-133 (G) A1-13
XSHP OUT CN1 14 → PA-133 (G) A1-14
RG OUT CN1 4 → PA-133 (G) A1-4
XSHD OUT CN2 13 → PA-134 (B) A1-13
XSHP OUT CN2 14 → PA-134 (B) A1-14
LH1 OUT CN2 3 → PA-134 (B) A1-3
XSHD OUT CN3 13 → PA-133 (R) A1-13
XSHP OUT CN3 14 → PA-133 (R) A1-14
LH1 OUT CN3 3 → PA-133 (R) A1-3
H1 OUT CN2 2 → PA-134 (B) A1-2
H2 OUT CN2 1 → PA-134 (B) A1-1
H1 OUT CN3 2 → PA-133 (R) A1-2
H2 OUT CN3 1 → PA-133 (R) A1-1
V1 OUT CN1 9 → PA-133 (G) A1-9
V2 OUT CN1 8 → PA-133 (G) A1-8
V3 OUT CN1 10 → PA-133 (G) A1-10
V4 OUT CN1 11 → PA-133 (G) A1-11
G VSUB OUT CN1 7 → PA-133 (G) A1-7
V1 OUT CN2 9 → PA-134 (B) A1-9
V2 OUT CN2 8 → PA-134 (B) A1-8
V3 OUT CN2 10 → PA-134 (B) A1-10
V4 OUT CN2 11 → PA-134 (B) A1-11
B VSUB OUT CN2 7 → PA-134 (B) A1-7
V1 OUT CN3 9 → PA-133 (R) A1-9
V2 OUT CN3 8 → PA-133 (R) A1-8
V3 OUT CN3 10 → PA-133 (R) A1-10
V4 OUT CN3 11 → PA-133 (R) A1-11
R VSUB OUT CN3 7 → PA-133 (R) A1-7
XSG1 OUT A1 15 → IF 2-6
RG OUT CN2 4 → PA-134 (B) A1-4
RG OUT CN3 4 → PA-133 (R) A1-4

TG-102/102P BLOCK

DXC-930 (UC)
DXC-930 (J)
DXC-930P (EK)
DXC-960MD (UC)
XC-009 (J)
XC-009P (J)
B-DXC930-TG102BLOCK/M

PR-158/158P BLOCK

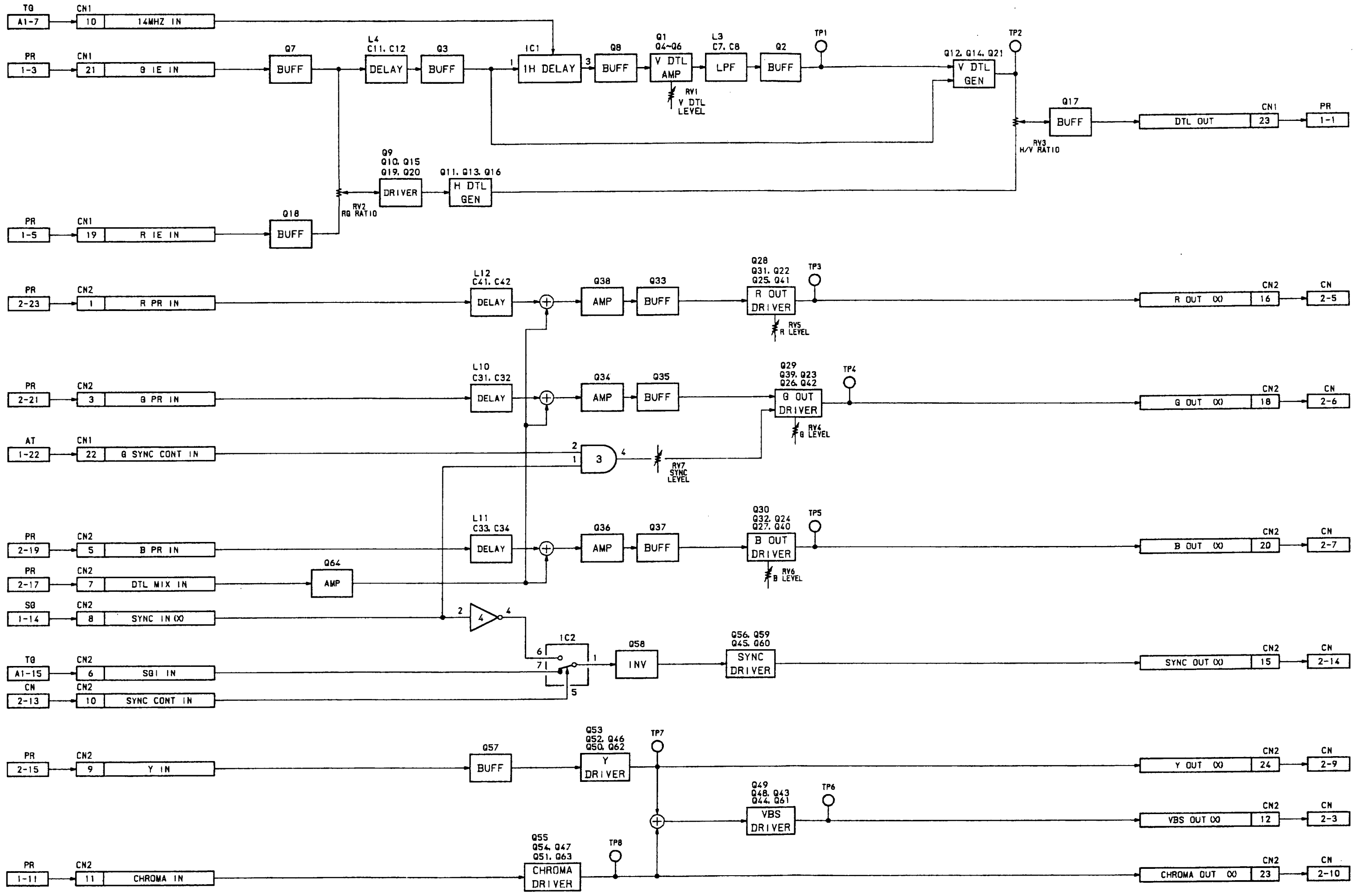

IC8 (1/3)
R BLK TRACK IN
R PA IN
AGC REF PULSE IN
G BLK TRACK IN
G PA IN
B BLK TRACK IN
B PA IN
C TEMP IN
CLP5 IN
CLP3 IN
BARS CONT IN
BLKG IN
CS2 IN
CS3 IN
CS4 IN
SERIAL DATA IN
SYSTEM CLOCK IN
CLP4 IN
Y (IRIS) OUT
LPF
BUFF
DRIVER
RV1 R GAIN
RV2 G GAIN
RV3 B GAIN
AGC AMP
CLIP
CLAMP
WHITE CLIP
AGC
DC-FB
PULSE SEP
VCA
PRE KNEE
γ
PED
KNEE
BLKG CLEAN
AMP
DELAY
IC11, IC10
COLOR BAR GEN.
IC12 BARS OSC
RV5 CB WIDTH
RV15 R LEVEL
RV14 G LEVEL
RV13 B LEVEL
RV12 R/B RATIO
Q56, Q87 (R-Y) AMP
Q64, Q89 (B-Y) AMP
Y AMP
ENC Y AMP
IC8 (3/3)
BASE CLIP
DL5 70ns DELAY
DL4 30ns DELAY
IC13 D/A CONV.
IC16 D/A CONV.
IC18 D/A CONV.
CS
S DATA
S CLOCK
IC2 (1/3)
IC2 (2/3)
IC2 (3/3)
IC1 (1/2)
IC1 (2/2)
IC9
R37, R38, R41 Y MATRIX
Y AMP
IC3
IC4
IC6
IC7
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP10
TP11
TP12
TP13
TP14


IC8 (1/3)
CLAMP
VCA
PRE KNEE
γ
DC-FB
PED
KNEE
WHITE CLIP
BLKG CLEAN
AMP
PULSE SEP
Q12-Q14 AMP
Q11 BUFF
DL1 DELAY
Q15 BUFF
TP6
Q29-Q31 AMP
Q27 BUFF
DL2 DELAY
Q32 BUFF
TP9
Q45-Q47 AMP
Q43 BUFF
DL3 DELAY
Q48 BUFF
TP13
R PR OUT
CN2 23
G PR OUT
CN2 21
B PR OUT
CN2 19
IF 2-1
AT 2-3
IF 2-3
AT 2-5
IF 2-5
AT 2-7
IC12 BARS OSC
RV5 CB WIDTH
IC11, IC10 COLOR BAR GEN.
RV15 R LEVEL
RV14 G LEVEL
RV13 B LEVEL
RV12 R/B RATIO
Q56, Q87 (R-Y) AMP
Q64, Q89 (B-Y) AMP
L12 C85, C86 LPF
L13 C108, C109 LPF
Q71 BURST AMP
RV10 BURST LEVEL
RV8 HUE
Q60, Q62 R-Y AMP
RV7 R-Y CAR BAL
Q68, Q72 B-Y AMP
RV11 B-Y LEVEL
RV9 B-Y CAR BAL
TP16
TP17
Q61 CLAMP
Q69 CLAMP
IC14
R-Y AXIS MOD
B-Y AXIS MOD
PHASE ALT (PAL)
GAIN CONT
CHROMA BUFF
FL4 BPF
Q55, Q54 CHROMA AMP
RV6 CHROMA LEVEL
LV1 PHASE ADJ
CHROMA OUT
CN2 13
IF 2-11
SC IN 00
CN2 20
SG 1-12
L ALT IN
CN2 14
SG 1-6
BF IN
CN2 16
SG 1-8
Q78 SYNC AMP
SYNC IN
CN2 24
SG 1-14
IC1 (1/2) AMP
IC1 (2/2) AMP
IC9 AMP
Y AMP
Q77 AMP
Q75 BUFF
TP14
IC8 (3/3)
AMP
VCA
DC-FB
BASE CLIP
VCA
ENC Y AMP
Q52, Q53 AMP
Q51 BUFF
TP15
DTL MIX OUT
CN2 17
IF 2-7
IC17
GAIN CONT
LEVEL CONT
GAIN SLICE
CLAMP SETUP SYNC ADD WHT CLIP
LEVEL CONT
LOGIC
Q70, Q73 AMP
Q67 BUFF
DL5 70ns DELAY
Q63, Q65 AMP
Q74 CLAMP
Q66 AMP
DL4 30ns DELAY
Q84 BUFF
DL8 100ns DELAY
Q85 BUFF
DL7 100ns DELAY
Q81 BUFF
DL6 100ns DELAY
Q79, Q80 Y AMP
Q76 BUFF
Y OUT
CN2 15
IF 2-9
CLP IN
CN1 11
MB IC1
DTL IN
CN1 1
IF 1-23
AGC CONT OUT
CN1 7
AT 1-12
AGC/STEP IN
CN1 6
1-11
IC3
IC4
IC6 AMP
IC7
Q49 AMP
Q50, Q90 AMP
Q28 CLAMP
Q26 AMP
TP10
Q33 BUFF
1
2
3
4
5

PR-158/158P BLOCK

DXC-930 (UC)
DXC-930 (J)
DXC-930P (EK)
DXC-960MD (UC)
XC-009 (J)
XC-009P (J)
B-DXC930-PR158BLOCK/W

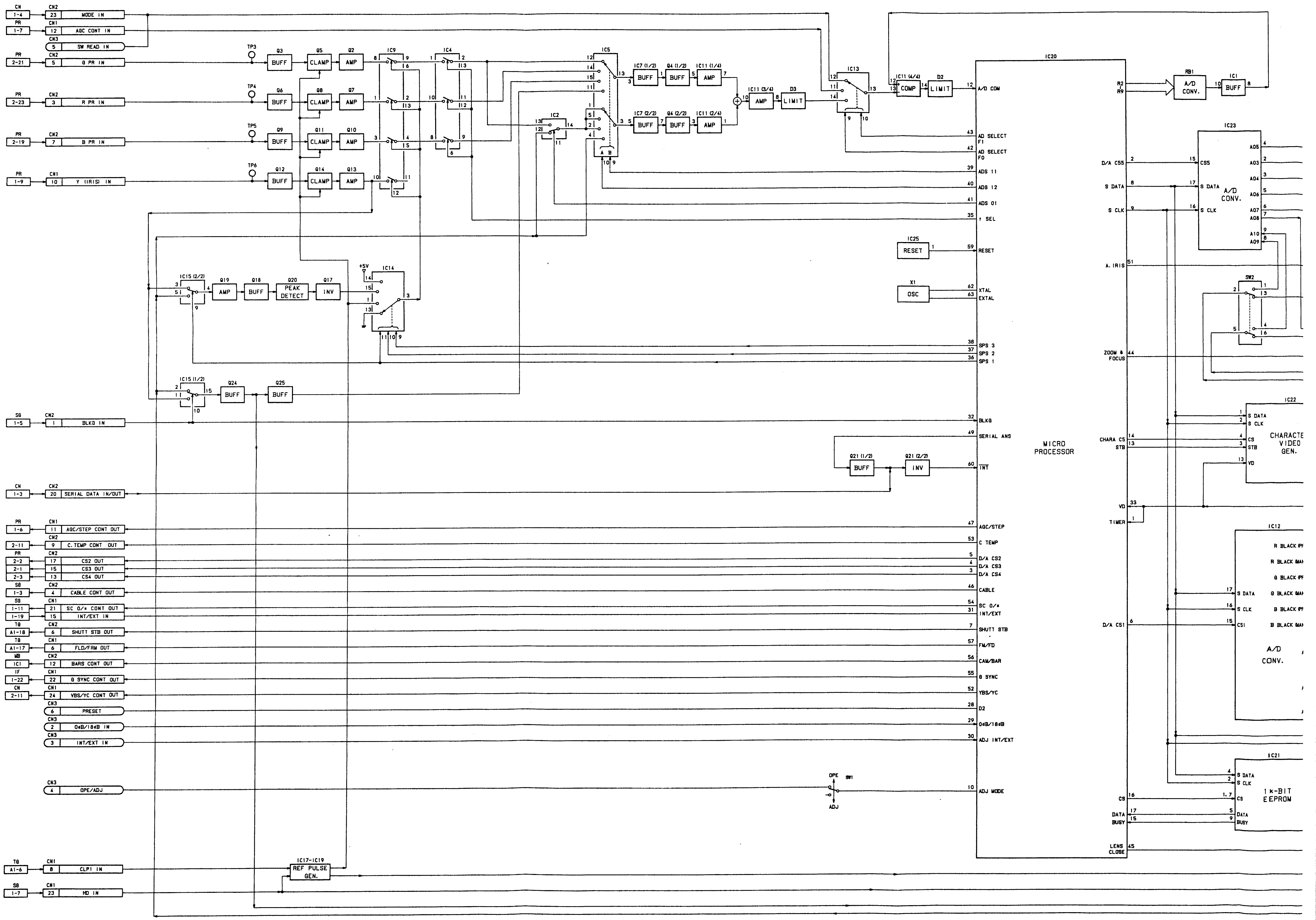
IF-354/354P BLOCK

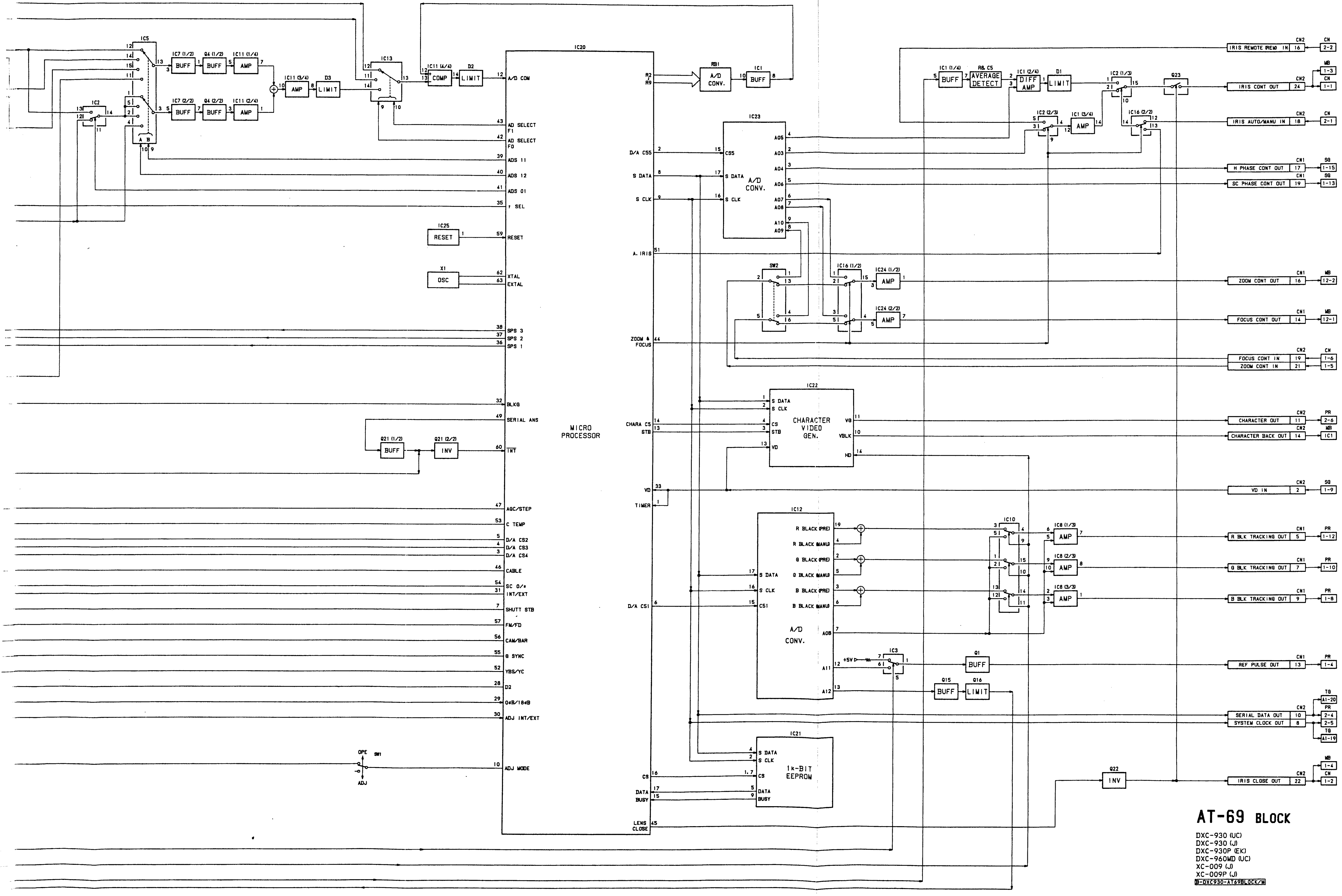

TG
A1-7
CN1
10
14MHZ IN
PR
1-3
CN1
21
G IE IN
Q7
BUFF
L4
C11, C12
DELAY
Q3
BUFF
IC1
1
1H DELAY
3
Q8
BUFF
Q1
Q4~Q6
V DTL
AMP
RV1
V DTL
LEVEL
L3
C7, C8
LPF
Q2
BUFF
TP1
Q12, Q14, Q21
V DTL
GEN
TP2
Q17
BUFF
RV3
H/V RATIO
DTL OUT
CN1
23
PR
1-1
Q9
Q10, Q15
Q19, Q20
DRIVER
Q11, Q13, Q16
H DTL
GEN
RV2
RG RATIO
PR
1-5
CN1
19
R IE IN
Q18
BUFF
PR
2-23
CN2
1
R PR IN
L12
C41, C42
DELAY
Q38
AMP
Q33
BUFF
Q28
Q31, Q22
Q25, Q41
R OUT
DRIVER
RV5
R LEVEL
TP3
R OUT (X)
CN2
16
CN
2-5
PR
2-21
CN2
3
G PR IN
L10
C31, C32
DELAY
Q34
AMP
Q35
BUFF
Q29
Q39, Q23
Q26, Q42
G OUT
DRIVER
RV4
G LEVEL
TP4
G OUT (X)
CN2
18
CN
2-6
AT
1-22
CN1
22
G SYNC CONT IN
2
1
3
4
RV7
SYNC
LEVEL
PR
2-19
CN2
5
B PR IN
L11
C33, C34
DELAY
Q36
AMP
Q37
BUFF
Q30
Q32, Q24
Q27, Q40
B OUT
DRIVER
RV6
B LEVEL
TP5
B OUT (X)
CN2
20
CN
2-7
PR
2-17
CN2
7
DTL MIX IN
Q64
AMP
SG
1-14
CN2
8
SYNC IN (X)
2
4
4
IC2
6
7
1
5
Q58
INV
Q56, Q59
Q45, Q60
SYNC
DRIVER
SYNC OUT (X)
CN2
15
CN
2-14
TG
A1-15
CN2
6
SGI IN
CN
2-13
CN2
10
SYNC CONT IN
PR
2-15
CN2
9
Y IN
Q57
BUFF
Q53
Q52, Q46
Q50, Q62
Y
DRIVER
TP7
Y OUT (X)
CN2
24
CN
2-9
Q49
Q48, Q43
Q44, Q61
VBS
DRIVER
TP6
VBS OUT (X)
CN2
12
CN
2-3
PR
1-11
CN2
11
CHROMA IN
Q55
Q54, Q47
Q51, Q63
CHROMA
DRIVER
TP8
CHROMA OUT (X)
CN2
23
CN
2-10

IF-354/354P BLOCK

DXC-930 (UC)
DXC-930 (J)
DXC-930P (EK)
DXC-960MD (UC)
XC-009 (J)
XC-009P (J)
B-DXC930-IF354BLOCK/M

AT-69 BLOCK

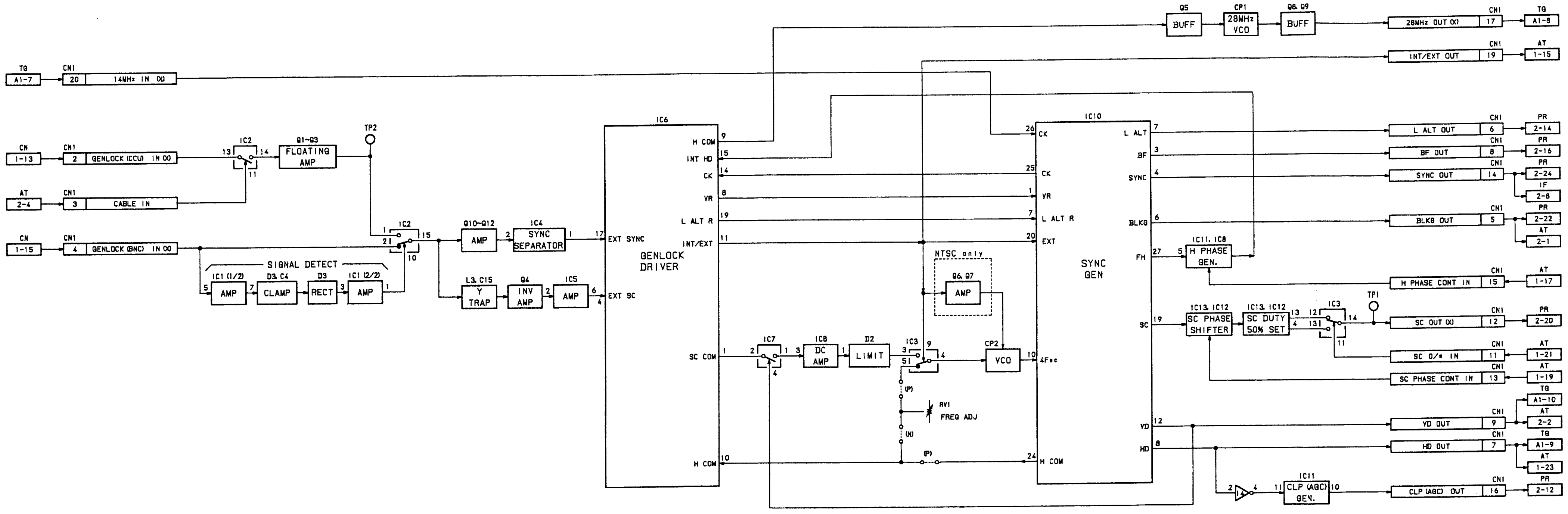

MODE IN
AGC CONT IN
SW READ IN
G PR IN
R PR IN
B PR IN
Y (IRIS) IN
TP3
TP4
TP5
TP6
BUFF
CLAMP
AMP
IC9
IC4
IC5
IC2
IC7 (1/2)
IC7 (2/2)
Q4 (1/2)
Q4 (2/2)
IC11 (1/4)
IC11 (2/4)
IC11 (3/4)
IC11 (4/4)
D3
LIMIT
IC13
COMP
D2
RB1
A/D CONV.
IC1
IC20
IC23
IC15 (2/2)
Q19
Q18
Q20
PEAK DETECT
Q17
INV
IC14
+5V
IC15 (1/2)
Q24
Q25
BLKG IN
SERIAL DATA IN/OUT
AGC/STEP CONT OUT
C.TEMP CONT OUT
CS2 OUT
CS3 OUT
CS4 OUT
CABLE CONT OUT
SC 0/π CONT OUT
INT/EXT IN
SHUTT STB OUT
FLD/FRM OUT
BARS CONT OUT
G SYNC CONT OUT
VBS/YC CONT OUT
PRESET
0dB/18dB IN
INT/EXT IN
OPE/ADJ
CLP1 IN
HD IN
IC17-IC19
REF PULSE GEN.
IC25
RESET
X1
OSC
Q21 (1/2)
Q21 (2/2)
OPE
SW1
ADJ
A/D COM
AD SELECT F1
AD SELECT F0
ADS 11
ADS 12
ADS 01
Y SEL
XTAL
EXTAL
SPS 3
SPS 2
SPS 1
BLKG
SERIAL ANS
INT
AGC/STEP
C TEMP
D/A CS2
D/A CS3
D/A CS4
CABLE
SC 0/π
INT/EXT
SHUTT STB
FM/FD
CAM/BAR
G SYNC
YBS/YC
D2
0dB/18dB
ADJ INT/EXT
ADJ MODE
MICRO PROCESSOR
R2
R9
D/A CS5
S DATA
S CLK
A. IRIS
ZOOM & FOCUS
CHARA CS
STB
VD
TIMER
D/A CS1
CS
DATA
BUSY
LENS CLOSE
SW2
IC22
CHARACTE VIDEO GEN.
IC12
R BLACK
G BLACK
B BLACK
IC21
1K-BIT EEPROM
AO5
AO3
AO4
AO6
AO7
AO8
A10
A09


IC5
IC7 (1/2)
BUFF
Q4 (1/2)
BUFF
IC11 (1/4)
AMP
IC7 (2/2)
BUFF
Q4 (2/2)
BUFF
IC11 (2/4)
AMP
IC2
A B
IC11 (3/4)
AMP
D3
LIMIT
IC13
IC11 (4/4)
COMP
D2
LIMIT
IC20
A/D COM
AD SELECT F1
AD SELECT F0
ADS 11
ADS 12
ADS 01
γ SEL
IC25
RESET
X1
OSC
XTAL
EXTAL
SPS 3
SPS 2
SPS 1
BLKG
SERIAL ANS
Q21 (1/2)
BUFF
Q21 (2/2)
INV
INT
MICRO PROCESSOR
AGC/STEP
C TEMP
D/A CS2
D/A CS3
D/A CS4
CABLE
SC 0/±
INT/EXT
SHUTT STB
FM/FD
CAM/BAR
G SYNC
YBS/YC
D2
0dB/18dB
ADJ INT/EXT
OPE SW1
ADJ
ADJ MODE
R2 ~ R9
RB1
A/D CONV.
IC1
BUFF
D/A CS5
S DATA
S CLK
IC23
CS5
S DATA
S CLK
A/D CONV.
A05
A03
A04
A06
A07
A08
A10
A09
A. IRIS
SW2
IC16 (1/2)
IC24 (1/2)
AMP
IC24 (2/2)
AMP
ZOOM & FOCUS
IC22
S DATA
S CLK
CS
STB
VD
CHARACTER VIDEO GEN.
VG
VBLK
HD
CHARA CS
STB
VD
TIMER
IC12
R BLACK (PRE)
R BLACK (MANU)
G BLACK (PRE)
G BLACK (MANU)
B BLACK (PRE)
B BLACK (MANU)
S DATA
S CLK
CS1
A/D CONV.
A08
A11
A12
D/A CS1
+5V
IC3
Q1
BUFF
Q15
BUFF
Q16
LIMIT
IC10
IC8 (1/3)
AMP
IC8 (2/3)
AMP
IC8 (3/3)
AMP
IC21
S DATA
S CLK
CS
DATA
BUSY
1k-BIT EEPROM
CS
DATA
BUSY
LENS CLOSE
Q22
INV
IC1 (1/4)
BUFF
R8, C5
AVERAGE DETECT
IC1 (2/4)
DIFF AMP
D1
LIMIT
IC2 (1/3)
IC2 (2/3)
IC1 (3/4)
AMP
IC16 (2/2)
Q23
IRIS REMOTE (REM) IN
CN2 16
CN 2-2
IRIS CONT OUT
CN2 24
MB 1-3
CN 1-1
IRIS AUTO/MANU IN
CN2 18
CN 2-1
H PHASE CONT OUT
CN1 17
SG 1-15
SC PHASE CONT OUT
CN1 19
SG 1-13
ZOOM CONT OUT
CN1 16
MB 12-2
FOCUS CONT OUT
CN1 14
MB 12-1
FOCUS CONT IN
CN2 19
CN 1-6
ZOOM CONT IN
CN2 21
CN 1-5
CHARACTER OUT
CN2 11
PR 2-6
CHARACTER BACK OUT
CN2 14
MB IC1
VD IN
CN2 2
SG 1-9
R BLK TRACKING OUT
CN1 5
PR 1-12
G BLK TRACKING OUT
CN1 7
PR 1-10
B BLK TRACKING OUT
CN1 9
PR 1-8
REF PULSE OUT
CN1 13
PR 1-4
SERIAL DATA OUT
CN2 10
SYSTEM CLOCK OUT
CN2 8
TG A1-20
PR 2-4
PR 2-5
TG A1-19
IRIS CLOSE OUT
CN2 22
MB 1-4
CN 1-2

AT-69 BLOCK

DXC-930 (UC)
DXC-930 (J)
DXC-930P (EK)
DXC-960MD (UC)
XC-009 (J)
XC-009P (J)
B-DXC930-AT69BLOCK/M

SG-194/194P BLOCK


TG
A1-7
CN1
20
14MHz IN (X)
CN
1-13
CN1
2
GENLOCK (CCU) IN (X)
AT
2-4
CN1
3
CABLE IN
CN
1-15
CN1
4
GENLOCK (BNC) IN (X)
IC2
13
14
11
Q1~Q3
FLOATING AMP
TP2
IC2
1
2
15
10
SIGNAL DETECT
IC1 (1/2)
AMP
D3, C4
CLAMP
D3
RECT
IC1 (2/2)
AMP
Q10~Q12
AMP
IC4
SYNC SEPARATOR
L3, C15
Y TRAP
Q4
INV AMP
IC5
AMP
IC6
EXT SYNC
EXT SC
GENLOCK DRIVER
H COM
INT HD
CK
VR
L ALT R
INT/EXT
SC COM
H COM
IC7
IC8
DC AMP
D2
LIMIT
IC3
NTSC only
Q6, Q7
AMP
CP2
VCO
(P)
RV1
FREQ ADJ
(N)
(P)
IC10
CK
CK
VR
L ALT R
EXT
4Fsc
H COM
SYNC GEN
L ALT
BF
SYNC
BLKG
FH
SC
VD
HD
Q5
BUFF
CP1
28MHz VCO
Q8, Q9
BUFF
28MHz OUT (X)
INT/EXT OUT
IC11, IC8
H PHASE GEN.
IC13, IC12
SC PHASE SHIFTER
IC13, IC12
SC DUTY 50% SET
IC3
TP1
IC11
CLP (AGC) GEN.
L ALT OUT
BF OUT
SYNC OUT
BLKG OUT
H PHASE CONT IN
SC OUT (X)
SC 0/π IN
SC PHASE CONT IN
VD OUT
HD OUT
CLP (AGC) OUT
CN1
17
19
6
8
14
5
15
12
11
13
9
7
16
TG A1-8
AT 1-15
PR 2-14
PR 2-16
PR 2-24
IF 2-8
PR 2-22
AT 2-1
AT 1-17
PR 2-20
AT 1-21
AT 1-19
TG A1-10
AT 2-2
TG A1-9
AT 1-23
PR 2-12

SG-194/194P BLOCK

DXC-930 (UC)
DXC-930 (J)
DXC-930P (EK)
DXC-960MD (UC)
XC-009 (J)
XC-009P (J)
B-DXC930-SG194BLOCK/M

SG-194/194P

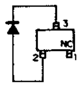
SECTION B
SEMICONDUCTOR

The circuit diagram of IC is obtained from the IC data book published by the manufacturer.

TYPE	PAGE
02DZ ? ?	B-2
1SS181	B-2
1SS226	B-2
1SS303	B-2
1SS304	B-2
2SA1576	B-2
2SA1611	B-2
2SC4103	B-2
2SC4177	B-2
2SK852	B-2
CX22017	B-3
CXA1439M	B-3
CXA1592R	B-3
CXD1216M	B-4
CXD1217M	B-4
CXD1250N	B-5
CXD1256AR	B-7
CXL5504M	B-7
D2FL20	B-2
HD14053BFP	B-7
HD63B05Y0E64F	B-8
LM1881M	B-8
M62352GP	B-9
M6M80011AFP	B-9
MA143	B-2
MC14051BF	B-9
MC14052BF	B-10
MC14053BF	B-7
MC14069UBF	B-10
MC34182M	B-10
MC74AC04M	B-10
MC74HC4053F	B-10
NJM360M	B-10
S-8054ALR-LN	B-11
SC7S04F	B-11
SN74HC00ANS	B-11
SN74HC193ANS	B-11
SN74HC27ANS	B-11
SN74HC4066NS	B-11
SN74HC74ANS	B-12
SN74LS123NS	B-12
TC4S66F	B-12
TC4S69F	B-12
TC4S81F	B-12
TC4W53F	B-12
TC74HC4538AF	B-10
TC7S04F	B-11
TL062CPS	B-10
TL064CNS	B-12
TL084CNS	B-12
UPC2372GF-3B9	B-13
UPC358G2	B-14
UPC4558G2	B-14
UPD6142G-101	B-14
XP1401	B-2
XP1501	B-2
XP4601	B-2
XP6401	B-2
XP6501	B-2

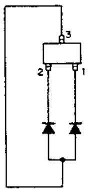
DIODE, TRANSISTOR

(SCALE 4/1)
TOP VIEW



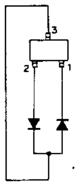
02DZ ? ?

(SCALE 4/1)
TOP VIEW



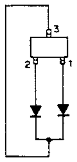
1SS181
1SS303

(SCALE 4/1)
TOP VIEW



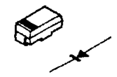
1SS226

(SCALE 4/1)
TOP VIEW



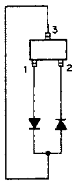
1SS304

(SCALE 2/1)
TOP VIEW



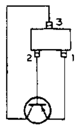
D2FL20

(SCALE 4/1)
TOP VIEW



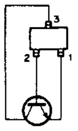
MA143

(SCALE 4/1)
TOP VIEW



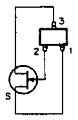
2SA1576
2SA1611

(SCALE 4/1)
TOP VIEW



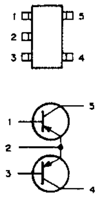
2SC4103
2SC4177

(SCALE 4/1)
TOP VIEW



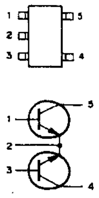
2SK852

(SCALE 6/1)
TOP VIEW


1
2
3
5
4
5
1
2
3
4

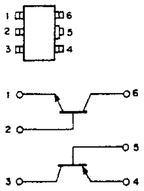
XP1401

(SCALE 6/1)
TOP VIEW


1
2
3
5
4
5
1
2
3
4

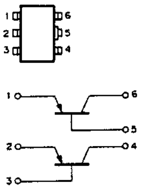
XP1501

(SCALE 6/1)
TOP VIEW


1
2
3
6
5
4
1
6
2
5
3
4

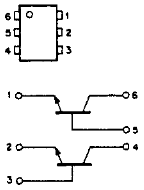
XP4601

(SCALE 6/1)
TOP VIEW


1
2
3
6
5
4
1
6
5
2
4
3

XP6401

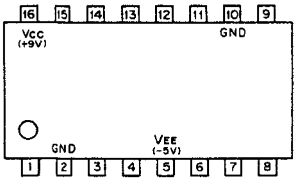
(SCALE 6/1)
TOP VIEW


6
5
4
1
2
3
1
6
5
2
4
3

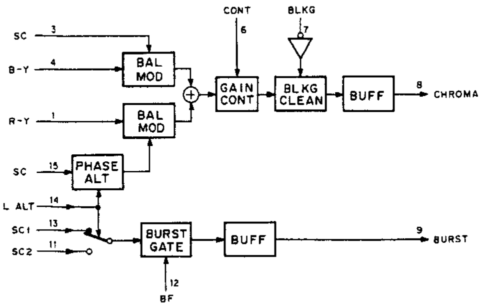
XP6501

CX22017 (SONY)

VIDEO SIGNAL PROCESSOR
– TOP VIEW –



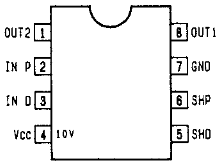
16
15
14
13
12
11
10
9
Vcc (+9V)
GND
GND
VEE (-5V)
1
2
3
4
5
6
7
8



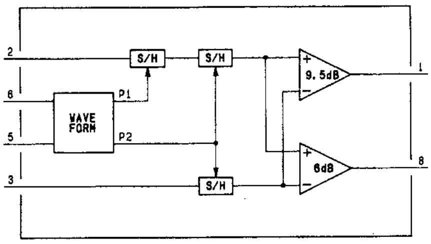
SC
B-Y
R-Y
SC
L ALT
SC1
SC2
CONT
BLKG
BAL MOD
BAL MOD
PHASE ALT
GAIN CONT
BLKG CLEAN
BUFF
CHROMA
BURST GATE
BUFF
BURST
BF

CXA1439M (SONY) FLAT PACKAGE

CORRELATED DOUBLE SAMPLING
– TOP VIEW –



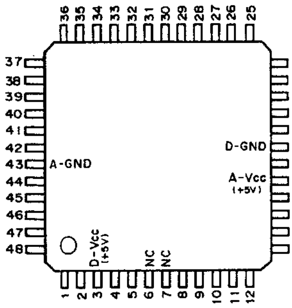
OUT2 1
IN P 2
IN D 3
Vcc 4 10V
8 OUT1
7 GND
6 SHP
5 SHD



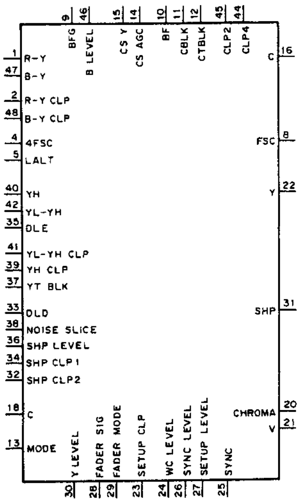
S/H
S/H
S/H
WAVE FORM
P1
P2
9.5dB
6dB

CXA1592R (SONY) FLAT PACKAGE

ENCODER FOR CCD COLOR CAMERA
– TOP VIEW –

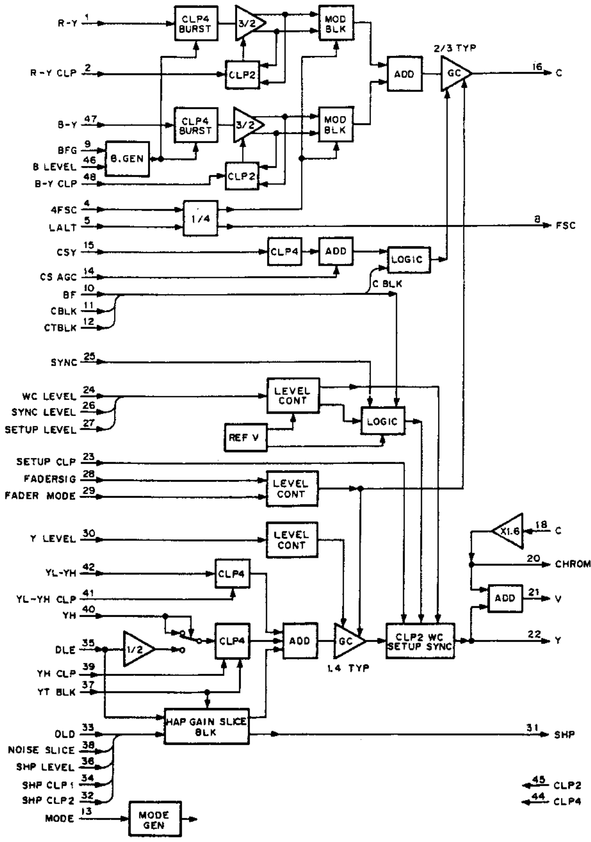


A-GND
D-GND
A-Vcc (+5V)
D-Vcc (+5V)
NC
NC



BFG
B LEVEL
CS Y
CS AGC
BF
CBLK
CTBLK
CLP2
CLP4
R-Y
B-Y
R-Y CLP
B-Y CLP
4FSC
LALT
YH
YL-YH
DLE
YL-YH CLP
YH CLP
YT BLK
DLD
NOISE SLICE
SHP LEVEL
SHP CLP1
SHP CLP2
C
MODE
Y LEVEL
FADER SIG
FADER MODE
SETUP CLP
WC LEVEL
SYNC LEVEL
SETUP LEVEL
SYNC
C
FSC
Y
SHP
CHROMA
V

PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL
1	I	R-Y	13	I	MODE	25	I	SYNC	37	I	YTBLK
2	I	R-Y CLP	14	I	CS AGC	26	I	SYNC LEVEL	38	I	NOISE SLICE
3	–	D-Vcc(+5V)	15	I	CSY	27	I	SETUP LEVEL	39	I	YH CLP
4	I	4FSC	16	O	C	28	I	FADER SIG	40	I	YH
5	I	LALT	17	–	A-Vcc(+5V)	29	I	FADER MODE	41	I	YL-YH CLP
6	–	NC	18	I	C	30	I	Y LEVEL	42	I	YL-YH
7	–	NC	19	–	D-GND	31	O	SHP	43	–	A-GND
8	O	FSC	20	O	CHROMA	32	I	SHP CLP2	44	I	CLP4
9	I	BFG	21	O	V	33	I	DLD	45	I	CLP2
10	I	BF	22	O	Y	34	I	SHP CLP1	46	I	B LEVEL
11	I	CBLK	23	I	SETUP CLP	35	I	DLE	47	I	B-Y
12	I	CTBLK	24	I	WC LEVEL	36	I	SHP LEVEL	48	I	B-Y CLP



R-Y
R-Y CLP
B-Y
BFG
B LEVEL
B-Y CLP
4FSC
LALT
CSY
CS AGC
BF
CBLK
CTBLK
SYNC
WC LEVEL
SYNC LEVEL
SETUP LEVEL
SETUP CLP
FADERSIG
FADER MODE
Y LEVEL
YL-YH
YL-YH CLP
YH
DLE
YH CLP
YT BLK
OLD
NOISE SLICE
SHP LEVEL
SHP CLP1
SHP CLP2
MODE
CLP4 BURST
3/2
MOD BLK
CLP2
ADD
2/3 TYP
GC
C
B.GEN
1/4
FSC
CLP4
ADD
LOGIC
C BLK
LEVEL CONT
LOGIC
REF V
LEVEL CONT
LEVEL CONT
X1.6
C
CHROMA
ADD
V
CLP4
1/2
CLP4
ADD
GC
L4 TYP
CLP2 WC SETUP SYNC
Y
HAP GAIN SLICE BLK
SHP
CLP2
CLP4
MODE GEN

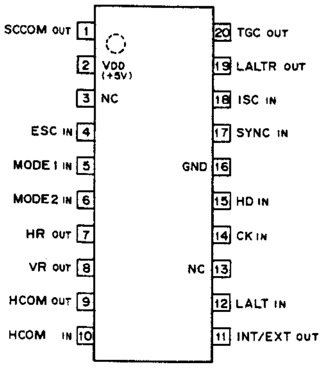
INPUT
4FSC ; 4FSC USED TO MAKE UP THE SUB CARRIER
B LEVEL ; CONTROLS THE BURST LEVEL
BF ; BURST FLAG PULSE
BFG ; INSERTS PULSE SLIGHT LARGER THAN BF ON BOTH ENDS
C ; INPUT FOR CHROMA SIGNAL PASSED THROUGH BPF
CBLK ; COMPOSITE BLANKING PULSE
CLP2, 4 ; CLAMP2, 4 PULSE INPUT
CS AGC ; SUPPRESS CHROMA SIGNAL AT THE AGC GAIN CONTROL SIGNAL
CSY ; SUPPRESS CHROMA SIGNAL AT THE Y SIGNAL
CTBLK ; CHROMA TITLER PULSE
DLD ; CONNECTS THE DELAY LINE DRIVE SIDE OF THE APERTURE SIGNAL
DLE ; CONNECTS THE DELAY LINE END SIDE OF THE APERTURE SIGNAL
FADER MODE ; BLACK FADER AND WHITE FADER MODE SELECT
FADER SIG ; CONTROLS THE SIGNAL SUPPRESS LEVEL DURING BLACK FADER, CONTROLS THE SIGNAL SUPPRESS LEVEL DURING WHITE FADER AND AT THE SAME TIME CONTROLS THE SET UP LEVEL
LALT ; INPUT FOR LINE ALTERNATE SIGNAL DURING PAL MODE
MODE ; SELECTS NTSC, PAL OR NTSC × 2, PAL × 2 MODES
NOISE SLICE ; CONTROLS THE SLICE LEVEL OF THE APERTURE SIGNAL
R-Y, B-Y ; R-Y, B-Y SIGNAL
R-Y, B-Y CLP ; CONNECTING THE CAPACITOR FOR R-Y, B-Y MODULATOR CLAMP
SETUP CLP ; CONNECTING FOR THE WHITE CLIP CLAMP CAPACITOR
SETUP LEVEL ; SET UP LEVEL CONTROL
SHP CLP1, 2 ; CONNECTS THE CLAMP CAPACITOR USED FOR THE SLICE OF THE APERTURE SIGNAL
SHP LEVEL ; CONTROL OF THE APERTURE SIGNAL LEVEL
SYNC ; SYNC PULSE
SYNC LEVEL ; SYNC LEVEL CONTROL
WC LEVEL ; WHITE CLIP LEVEL CONTROL
Y LEVEL ; Y SIGNAL LEVEL CONTROL
YH ; YH SIGNAL
YH CLP ; CONNECTS THE CAPACITOR FOR YH INPUT CLAMP
YL-YH ; V APERTURE SIGNALS, TITLER SIGNALS AND YL-YH SIGNALS
YL-YH CLP ; CONNECTS THE CAPACITOR FOR YL-YH INPUT CLAMP
YTBLK ; Y TITLER PULSE

OUTPUT
C ; CHROMA SIGNAL OUTPUT
CHROMA ; CHROMA SIGNAL OUTPUT WHEN USED FOR Y/C SEPARATION OUTPUT
FSC ; OUTPUTS A SUB CARRIER WITH THE SAME PHASE AS B-Y
SHP ; APERTURE SIGNAL
V ; COMPOSITE VIDEO SIGNAL
Y ; Y SIGNAL OUTPUT WHEN USED FOR Y/C SEPARATION OUTPUT

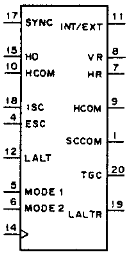
CXD1216M (SONY) FLAT PACKAGE

C-MOS GENLOCK DRIVER

– TOP VIEW –



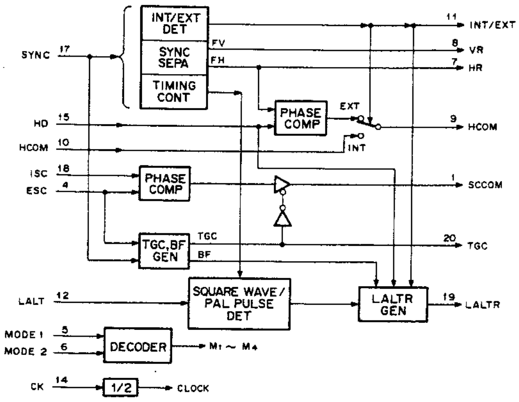
SCCOM OUT 1
2 VDD (+5V)
3 NC
ESC IN 4
MODE 1 IN 5
MODE2 IN 6
HR OUT 7
VR OUT 8
HCOM OUT 9
HCOM IN 10
20 TGC OUT
19 LALTR OUT
18 ISC IN
17 SYNC IN
GND 16
15 HD IN
14 CK IN
NC 13
12 LALT IN
11 INT/EXT OUT



17 SYNC
INT/EXT 11
15 HD
10 HCOM
VR 8
HR 7
18 ISC
4 ESC
HCOM 9
SCCOM 1
12 LALT
TGC 20
5 MODE 1
6 MODE 2
LALTR 19
14

INPUT		MODE	SYSTEM
MODE1	MODE2		
0	0	M1	PAL-VBS
1	0	M2	PALM-VBS
0	1	M3	PAL,SECAM-VS/SC/LALT
1	1	M4	NTSC-VBS,NTSC-VS/SC PALM-VS/SC/LALT

0 ; LOW LEVEL
1 ; HIGH LEVEL



SYNC 17
INT/EXT DET
SYNC SEPA
TIMING CONT
FV
FH
11 INT/EXT
8 VR
7 HR
HD 15
HCOM 10
PHASE COMP
EXT
INT
9 HCOM
ISC 18
ESC 4
PHASE COMP
1 SCCOM
TGC,BF GEN
TGC
BF
20 TGC
LALT 12
SQUARE WAVE / PAL PULSE DET
LALTR GEN
19 LALTR
MODE 1 5
MODE 2 6
DECODER
M1 ~ M4
CK 14
1/2
CLOCK

INPUT

CK	; 4fsc CLOCK INPUT
ESC	; SC/COLOR BURST
HCOM	; PHASE COMPARATE FROM CXD1217
HD	; H DRIVE FROM CXD1217
ISC	; SUBCARRIER FROM CXD1217
LALT	; LALT FROM REFERENCE SIGNAL GENERATOR
MODE1,2	; SYSTEM SELECT
SYNC	; SYNC FROM REFERENCE SIGNAL GENERATOR

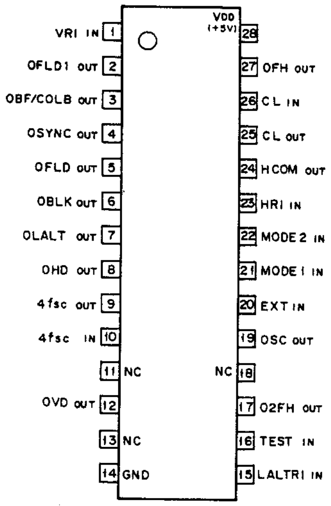
OUTPUT

HCOM	; PHASE COMPARATOR HR WITH HD
HR	; fH OF SYNC SEPARATE
INT/EXT	; INTERNAL/EXTERNAL SPECIFIED
LALTR	; LINE CHANGE RESET
SCCOM	; PHASE COMPARATOR ESC WITH ISC
TGC	; TRISTATE CONTROL
VR	; fV OF SYNC SEPARATE

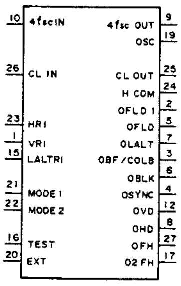
CXD1217M (SONY) FLAT PACKAGE

C-MOS SYNC GENERATOR

– TOP VIEW –



VRI IN 1
OFLD1 OUT 2
OBF/COLB OUT 3
OSYNC OUT 4
OFLD OUT 5
OBLK OUT 6
OLALT OUT 7
OHD OUT 8
4fsc OUT 9
4fsc IN 10
11 NC
OVD OUT 12
13 NC
14 GND
VDD (+5V) 28
27 OFH OUT
26 CL IN
25 CL OUT
24 HCOM OUT
23 HRI IN
22 MODE 2 IN
21 MODE 1 IN
20 EXT IN
19 OSC OUT
NC 18
17 O2FH OUT
16 TEST IN
15 LALTRI IN

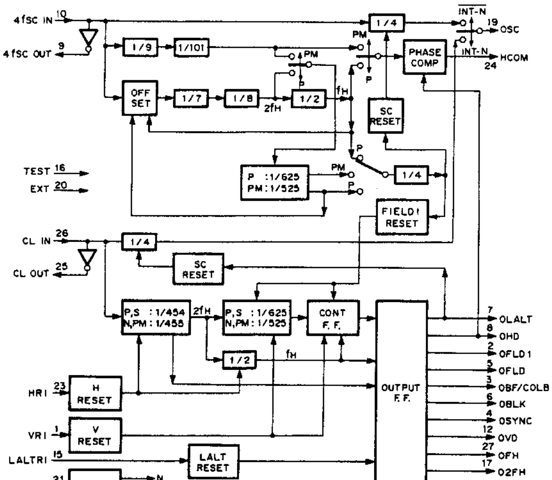


10 4fscIN
4fsc OUT 9
OSC 19
26 CL IN
CL OUT 25
H COM 24
OFLD1 2
23 HRI
OFLD 5
1 VRI
OLALT 7
15 LALTRI
OBF/COLB 3
OBLK 6
21 MODE 1
OSYNC 4
22 MODE 2
OVD 12
OHD 8
16 TEST
OFH 27
20 EXT
O2FH 17

SYSTEM	4fsc	CLOCK
NTSC	910fH	910fH
PAL	1135fH+2fv	908fH
PALM	909fH	910fH
SECAM	—	908fH

INPUT		SYSTEM
MODE1	MODE2	
0	0	NTSC
0	1	SECAM
1	0	PALM
1	1	PAL

0 ; LOW LEVEL
1 ; HIGH LEVEL



4fsc IN 10
4fsc OUT 9
1/9
1/101
PM
OFF SET
1/7
1/8
2fH
1/2
fH
1/4
INT-N
19 OSC
INT-N
PHASE COMP
24 HCOM
SC RESET
P
TEST 16
EXT 20
P :1/625
PM:1/525
1/4
FIELD1 RESET
CL IN 26
CL OUT 25
1/4
SC RESET
P,S :1/454
N,PM : 1/455
2fH
P,S :1/625
N,PM : 1/525
CONT F.F.
1/2
fH
OUTPUT F.F.
HRI 23
H RESET
VRI 1
V RESET
LALTRI 15
LALT RESET
MODE1 21
MODE2 22
DECODE
N
P
PM
S
7 OLALT
8 OHD
2 OFLD1
5 OFLD
3 OBF/COLB
6 OBLK
4 OSYNC
12 OVD
27 OFH
17 O2FH

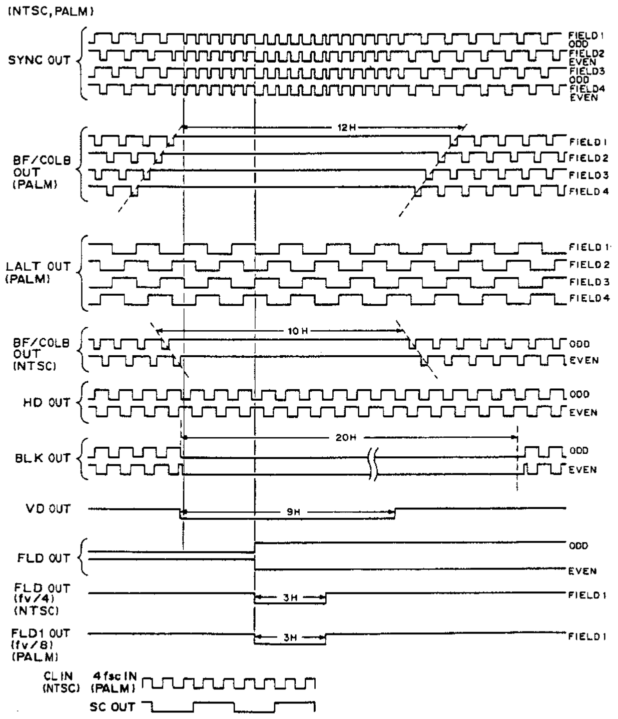
N : NTSC
P : PAL
PM : PALM
S : SECAM

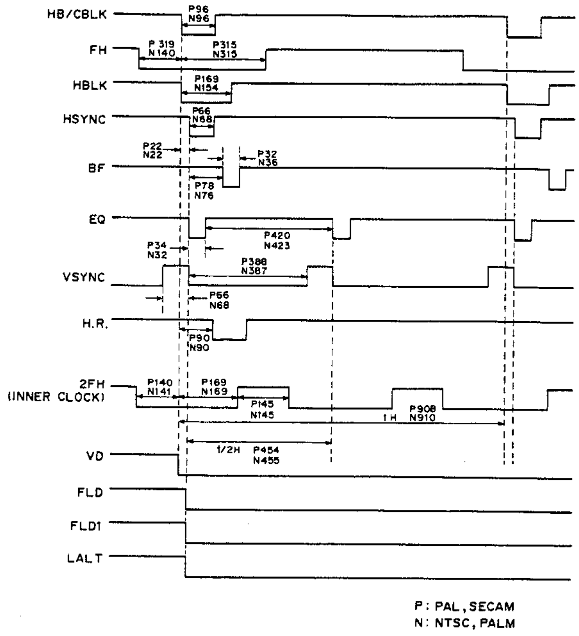
INPUT

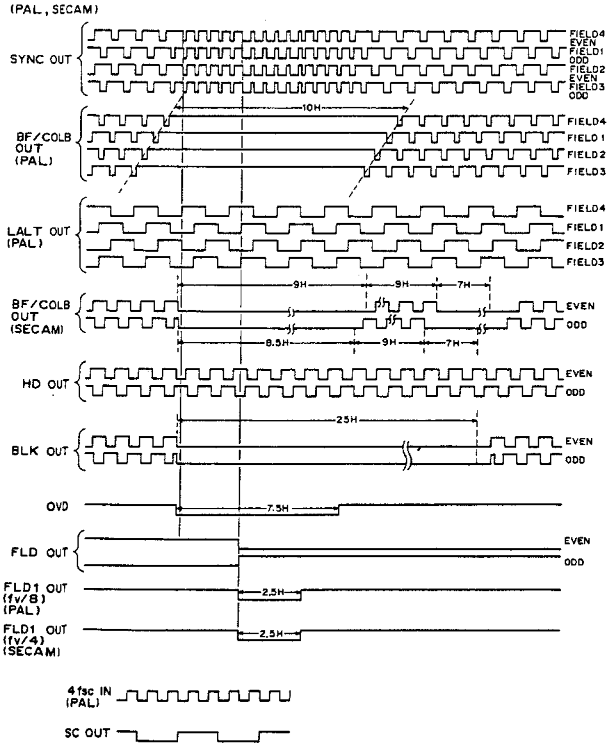
4fSC IN	; 4fSC INPUT
CL IN	; CLOCK INPUT
EXT	; SYNC MODE SELECT (L ; INTERNAL/H ; EXTERNAL)
HRI	; H RESET
LALTRI	; LINE CHANGE RESET
MODE 1,2	; SYSTEM SELECT
VRI	; V RESET

OUT PUT

4fSC OUT	; 4fSC OUTPUT
CL OUT	; CLOCK OUTPUT
HCOM	; PHASE COMPARATOR
O2fH	; 2fH OUTPUT
OBF/COLB	; BURST FLAG/COLOR BLANKING
OBLK	; COMPOSITE BLANKING
OFH	; H FREQUENCE
OFLD	; EVEN, ODD
OFLD1	; FIELD1
OHD	; H DRIVE
OLALT	; LINE CHANGE
OSC	; SUBCARRIER
OSYNC	; COMPOSITE SYNC
OVD	; V DRIVE

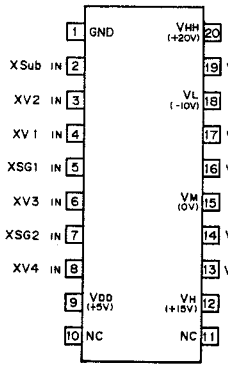

(NTSC, PALM)
SYNC OUT
FIELD1 ODD
FIELD2 EVEN
FIELD3 ODD
FIELD4 EVEN
12H
BF/COLB OUT (PALM)
FIELD1
FIELD2
FIELD3
FIELD4
LALT OUT (PALM)
FIELD1
FIELD2
FIELD3
FIELD4
10H
BF/COLB OUT (NTSC)
ODD
EVEN
HD OUT
ODD
EVEN
20H
BLK OUT
ODD
EVEN
VD OUT
9H
FLD OUT
ODD
EVEN
FLD OUT (fv/4) (NTSC)
3H
FIELD1
FLD1 OUT (fv/8) (PALM)
3H
FIELD1
CL IN (NTSC)
4fsc IN (PALM)
SC OUT

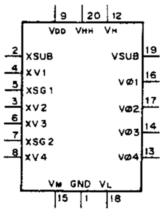

HB/CBLK
P96 N96
FH
P319 N140
P315 N315
HBLK
P169 N154
HSYNC
P66 N68
P22 N22
P32 N36
BF
P78 N76
EQ
P420 N423
P34 N32
P388 N387
VSYNC
P66 N68
H.R.
P90 N90
2FH (INNER CLOCK)
P140 N141
P169 N169
P145 N145
P908 N910
1H
1/2H P454 N455
VD
FLD
FLD1
LALT
P: PAL, SECAM
N: NTSC, PALM


(PAL, SECAM)
SYNC OUT
FIELD4 EVEN
FIELD1 ODD
FIELD2 EVEN
FIELD3 ODD
10H
BF/COLB OUT (PAL)
FIELD4
FIELD1
FIELD2
FIELD3
LALT OUT (PAL)
FIELD4
FIELD1
FIELD2
FIELD3
9H
9H
7H
BF/COLB OUT (SECAM)
EVEN
ODD
8.5H
9H
7H
HD OUT
EVEN
ODD
25H
BLK OUT
EVEN
ODD
OVD
7.5H
FLD OUT
EVEN
ODD
FLD1 OUT (fv/8) (PAL)
2.5H
FLD1 OUT (fv/4) (SECAM)
2.5H
4fsc IN (PAL)
SC OUT

CXD1250N (SONY) FLAT PACKAGE

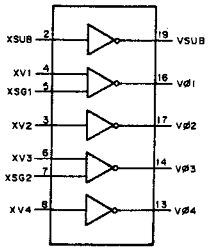
C-MOS VERTICAL CLOCK DRIVER FOR CCD
– TOP VIEW –


1 GND
XSub IN 2
XV2 IN 3
XV1 IN 4
XSG1 IN 5
XV3 IN 6
XSG2 IN 7
XV4 IN 8
9 VDD (+5V)
10 NC
VHH (+20V) 20
19 VSub OUT
VL (-10V) 18
17 Vφ2 OUT
16 Vφ1 OUT
VM (0V) 15
14 Vφ3 OUT
13 Vφ4 OUT
VH (+15V) 12
NC 11


9
20
12
VDD
VHH
VH
2 XSUB
4 XV1
5 XSG1
3 XV2
6 XV3
7 XSG2
8 XV4
VSUB 19
Vφ1 16
Vφ2 17
Vφ3 14
Vφ4 13
VM
GND
VL
15
1
18

INPUT
XSG1, XSG2 ; SENSOR GATE PULSE INPUT
XSUB ; CCD ELECTRIC CHARGE SWEEPING AWAY PULSE INPUT
XV1-XV4 ; VERTICAL REGISTER TRANSMISSION CLOCK INPUT

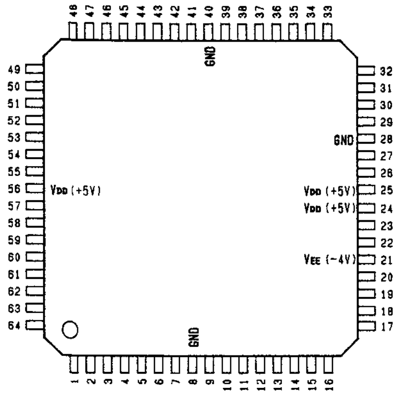
OUTPUT
VSUB ; CCD ELECTRIC CHARGE SWEEPING AWAY PULSE OUTPUT
Vφ1-Vφ4 ; VERTICAL REGISTER TRANSMISSION CLOCK OUTPUT


XSUB 2
19 VSUB
XV1 4
XSG1 5
16 Vφ1
XV2 3
17 Vφ2
XV3 6
XSG2 7
14 Vφ3
XV4 8
13 Vφ4

CXD1256AR (SONY) FLAT PACKAGE

TIMING GENERATOR FOR CCD CAMERA

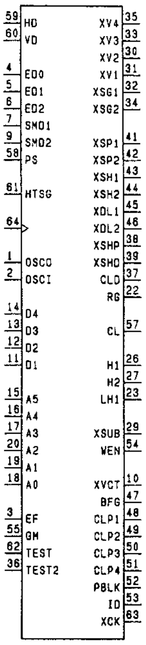
- TOP VIEW -



48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64
32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
GND
GND
VDD (+5V)
VDD (+5V)
VDD (+5V)
VEE (-4V)
GND

(VDD = +5V)
(VEE = -4V)

Pin No.	I/O	SYMBOL	Pin No.	I/O	SYMBOL	Pin No.	I/O	SYMBOL	Pin No.	I/O	SYMBOL
1	O	OSCO	17	O	A3	33	O	XV3	49	I/O	CLP2
2	I	OSCI	18	O	A0	34	O	XSG2	50	I/O	CLP3
3	I	EF	19	O	A1	35	O	XV4	51	O	CLP4
4	I	ED0	20	O	A2	36	I	TEST2	52	O	PBLK
5	I	ED1	21	–	VEE	37	O	CLD	53	O	ID
6	I	ED2	22	O	RG	38	O	XSHP	54	O	WEN
7	I	SMD1	23	–	LH1	39	O	XSHD	55	I	GM
8	–	GND	24	–	VDD	40	–	GND	56	–	VDD
9	I	SMD2	25	–	VDD	41	O	XSP1	57	O	CL
10	O	XVCT	26	O	H1	42	O	XSP2	58	I	PS
11	I	D1	27	O	H2	43	O	XSH1	59	I	HD
12	I	D2	28	–	GND	44	O	XSH2	60	I	VD
13	I	D3	29	O	XSUB	45	O	XDL1	61	I	HTSG
14	I	D4	30	O	XV2	46	O	XDL2	62	I	TEST
15	O	A5	31	O	XV1	47	O	BFG	63	O	XCK
16	O	A4	32	O	XSG1	48	O	CLP1	64	I	CK



59 HD
60 VD
4 ED0
5 ED1
6 ED2
7 SMD1
9 SMD2
58 PS
61 HTSG
64
1 OSCO
2 OSCI
14 D4
13 D3
12 D2
11 D1
15 A5
16 A4
17 A3
20 A2
19 A1
18 A0
3 EF
55 GM
62 TEST
36 TEST2
XV4 35
XV3 33
XV2 30
XV1 31
XSG1 32
XSG2 34
XSP1 41
XSP2 42
XSH1 43
XSH2 44
XDL1 45
XDL2 46
XSHP 38
XSHD 39
CLD 37
RG 22
CL 57
H1 26
H2 27
LH1 23
XSUB 29
WEN 54
XVCT 10
BFG 47
CLP1 48
CLP2 49
CLP3 50
CLP4 51
PBLK 52
ID 53
XCK 63

INPUT

CK ; 8fsc CLOCK

D1 ; WHEN EXTERNAL ROM IS USED, DATA INPUT.
WHEN NOT USED, L ; NO ERROR COMPENSATION

D2 ; WHEN EXTERNAL ROM IS USED, DATA INPUT
WHEN NOT USED, L ; COLOR H ; B/W

D3 ; WHEN EXTERNAL ROM IS USED, DATA INPUT.
WHEN NOT USED, FIXED TO LOW

D4 ; WHEN EXTERNAL ROM IS USED, DATA INPUT.
WHEN NOT USED, L ; NTSC H ; PAL

ED0 ; SHUTTER SPEED SET. WHEN SERIAL MODE, STROBE INPUT.

ED1 ; SHUTTER SPEED SET. WHEN SERIAL MODE, CLOCK INPUT.

ED2 ; SHUTTER SPEED SET. WHEN SERIAL MODE, DATA INPUT.

EF ; DATA INPUT METHOD CHANGE FOR ERROR COMPENSATION
H ; EXTERNAL ROM USED
L ; SERIAL INPUT FROM MICROPROCESSOR

GM ; L ; FOR ANALOG SIGNAL, H ; FOR DIGITAL SIGNAL

HD ; HORIZONTAL DRIVE

HTSG ; XSG1, XSG2 CONTROL
H ; XSG1 AND 2 GENERATED
L ; XSG1 AND 2 STOPPED

OSCI ; INVERTER INPUT FOR OSCILLATION

PS ; ELECTRONIC SHUTTER SPEED INPUT METHOD CHANGE
H ; PARALLEL INPUT
L ; SERIAL INPUT

SMD1, SMD2 ; SHUTTER MODE SET

TEST, TEST2 ; FOR TEST (NORMALLY Low)

VD ; VERTICAL DRIVE

OUTPUT

A5-A0 ; ADDRESS FOR EXTERNAL ROM

BFG ; PULSE FOR ENCODER • CHROMA MODULATOR
WHEN GM = H, ERROR POSITION SPECIFING PULSE

CL ; 4fsc CLOCK

CLD ; 4fsc CLOCK

CLP1, CLP4 ; PULSE FOR CLAMP

H1, H2 ; CLOCK FOR CCD HORIZONTAL REGISTER DRIVE

ID ; LINE IDENTIFICATION

OSCO ; INVERTER OUTPUT FOR OSCILLATION

PBLK ; BLANKING CLEANING PULSE

RG ; RESET GATE PULSE

WEN ; WRITE ENABLE (ONLY WHEN LOW SHUTTER SPEED)

XCK ; 8fsc CLOCK

XDL1, XDL2 ; CLOCK FOR DELAY LINE

XSG1, XSG2 ; CCD SENSOR ELECTRIC CHARGE READ OUT PULSE

XSH1, XSH2 ; SWITCHING SAMPLE HOLD PULSE

XSHD ; PULSE FOR DATA SAMPLE HOLD

XSHP ; PRE-CHARGE LEVEL SAMPLE HOLD PULSE

XSP1, XSP2 ; CHROMA SEPARATION SAMPLE HOLD PULSE

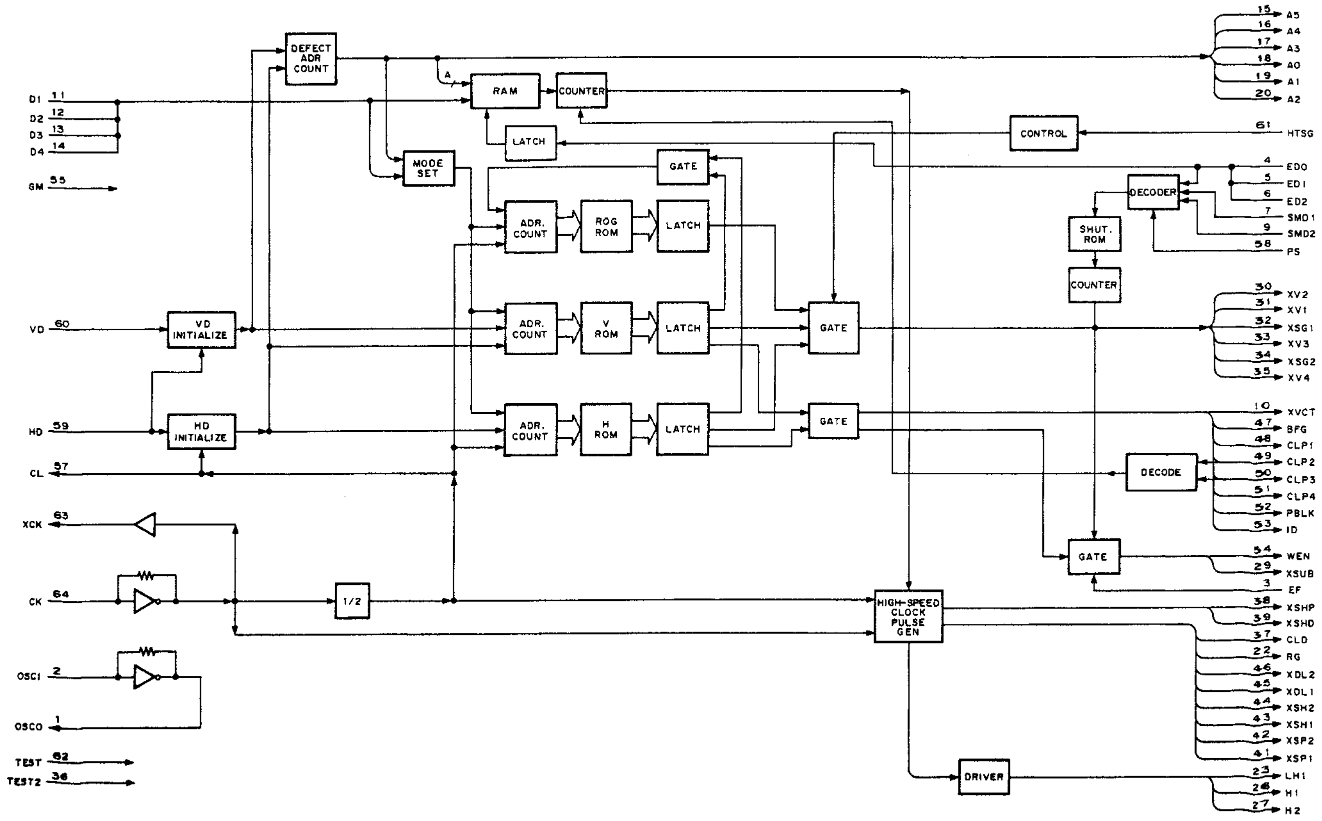
XSUB ; ELECTRIC CHARGE DISCHARGING PULSE

XV1-XV4 ; VERTICAL SCANNING CLOCK

XVCT ; POWER CONTROL FOR EXTERNAL ROM

INPUT/OUTPUT

CLP2, CLP3 ; PULSE FOR CLAMP. WHEN GM = H, STANDBY MODE SWITCHING INPUT

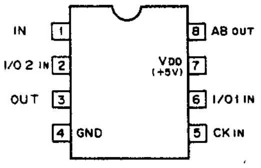


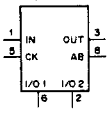
D1 11
D2 12
D3 13
D4 14
GM 55
VD 60
HD 59
CL 57
XCK 63
CK 64
OSCI 2
OSCO 1
TEST 62
TEST2 36
DEFECT ADR COUNT
A
RAM
COUNTER
LATCH
MODE SET
GATE
ADR. COUNT
ROG ROM
LATCH
VD INITIALIZE
ADR. COUNT
V ROM
LATCH
GATE
HD INITIALIZE
ADR. COUNT
H ROM
LATCH
GATE
1/2
HIGH-SPEED CLOCK PULSE GEN
DRIVER
CONTROL
DECODER
SHUT. ROM
COUNTER
DECODE
GATE
15 A5
16 A4
17 A3
18 A0
19 A1
20 A2
61 HTSG
4 ED0
5 ED1
6 ED2
7 SMD1
9 SMD2
58 PS
30 XV2
31 XV1
32 XSG1
33 XV3
34 XSG2
35 XV4
10 XVCT
47 BFG
48 CLP1
49 CLP2
50 CLP3
51 CLP4
52 PBLK
53 ID
54 WEN
29 XSUB
3 EF
38 XSHP
39 XSHD
37 CLD
22 RG
46 XDL2
45 XDL1
44 XSH2
43 XSH1
42 XSP2
41 XSP1
23 LH1
26 H1
27 H2

CXL5504M (SONY)

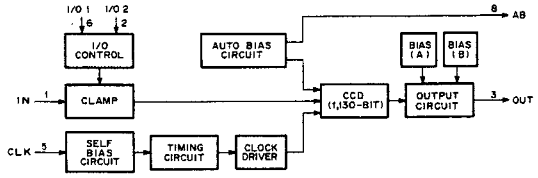
C-MOS CCD 1H DELAY LINE

– TOP VIEW –


IN 1
I/O 2 IN 2
OUT 3
4 GND
8 AB OUT
VDD (+5V) 7
6 I/O1 IN
5 CK IN


1 IN
5 CK
OUT 3
AB 8
I/O1 6
I/O2 2

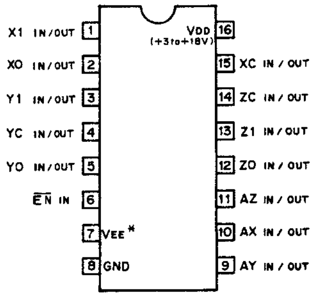
AB ; AUTO BIAS DC OUTPUT
CK ; CLOCK INPUT
IN ; SIGNAL INPUT
I/O1, I/O2 ; I/O CONTROL 1,2 INPUTS
OUT ; SIGNAL OUTPUT

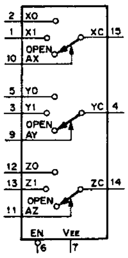

I/O 1 6
I/O 2 2
I/O CONTROL
IN 1
CLAMP
CLK 5
SELF BIAS CIRCUIT
TIMING CIRCUIT
CLOCK DRIVER
AUTO BIAS CIRCUIT
8 AB
BIAS (A)
BIAS (B)
CCD (1,130-BIT)
OUTPUT CIRCUIT
3 OUT

HD14053BFP (HITACHI) FLAT PACKAGE
MC14053BF (MOTOROLA) FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXERS/DEMULTIPLEXERS

– TOP VIEW –


X1 IN/OUT 1
X0 IN/OUT 2
Y1 IN/OUT 3
YC IN/OUT 4
Y0 IN/OUT 5
EN IN 6
7 VEE*
8 GND
VDD (+3 to +18V) 16
15 XC IN/OUT
14 ZC IN/OUT
13 Z1 IN/OUT
12 Z0 IN/OUT
11 AZ IN/OUT
10 AX IN/OUT
9 AY IN/OUT


2 X0
1 X1
OPEN
10 AX
XC 15
5 Y0
3 Y1
OPEN
9 AY
YC 4
12 Z0
13 Z1
OPEN
11 AZ
ZC 14
EN 6
VEE 7

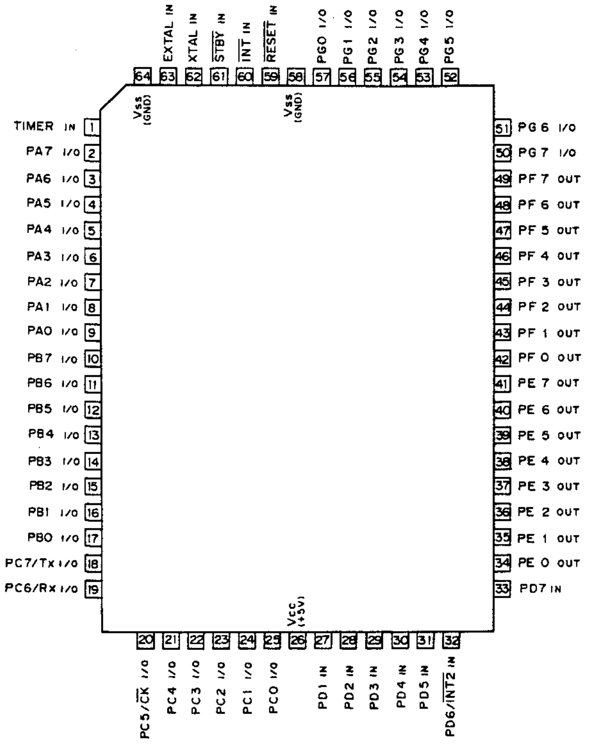
VEE*; VDD−VEE = +3 to +18V

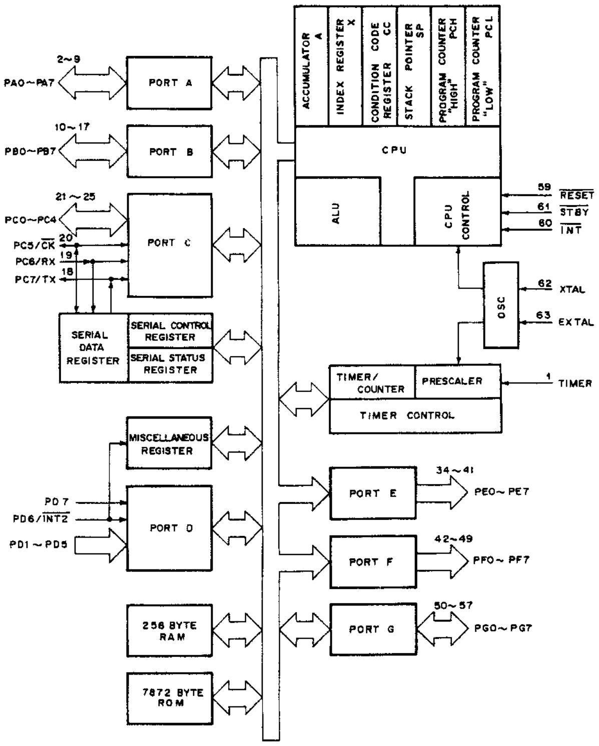
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

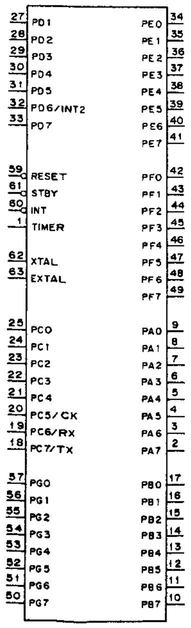
CONT. INPUTS		ON CHANNEL
EN	A (X,Y,Z,)	
0	0	0
0	1	1
1	X	OPEN

HD63B05Y0E64F (HITACHI) FLAT PACKAGE

C-MOS 8-BIT MICROPROCESSOR UNIT
- TOP VIEW -


TIMER IN 1
PA7 I/O 2
PA6 I/O 3
PA5 I/O 4
PA4 I/O 5
PA3 I/O 6
PA2 I/O 7
PA1 I/O 8
PA0 I/O 9
PB7 I/O 10
PB6 I/O 11
PB5 I/O 12
PB4 I/O 13
PB3 I/O 14
PB2 I/O 15
PB1 I/O 16
PB0 I/O 17
PC7/Tx I/O 18
PC6/Rx I/O 19
PC5/CK I/O 20
PC4 I/O 21
PC3 I/O 22
PC2 I/O 23
PC1 I/O 24
PC0 I/O 25
Vcc (+5V) 26
PD1 IN 27
PD2 IN 28
PD3 IN 29
PD4 IN 30
PD5 IN 31
PD6/INT2 IN 32
PD7 IN 33
PE 0 OUT 34
PE 1 OUT 35
PE 2 OUT 36
PE 3 OUT 37
PE 4 OUT 38
PE 5 OUT 39
PE 6 OUT 40
PE 7 OUT 41
PF 0 OUT 42
PF 1 OUT 43
PF 2 OUT 44
PF 3 OUT 45
PF 4 OUT 46
PF 5 OUT 47
PF 6 OUT 48
PF 7 OUT 49
PG 7 I/O 50
PG 6 I/O 51
PG5 I/O 52
PG4 I/O 53
PG3 I/O 54
PG2 I/O 55
PG1 I/O 56
PG0 I/O 57
Vss (GND) 58
RESET IN 59
INT IN 60
STBY IN 61
XTAL IN 62
EXTAL IN 63
Vss (GND) 64

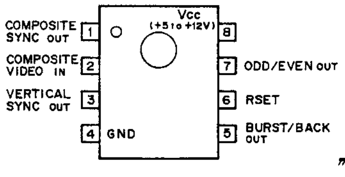

2~9
PA0~PA7
PORT A
10~17
PB0~PB7
PORT B
21~25
PC0~PC4
PC5/CK 20
PC6/RX 19
PC7/TX 18
PORT C
SERIAL DATA REGISTER
SERIAL CONTROL REGISTER
SERIAL STATUS REGISTER
MISCELLANEOUS REGISTER
PD 7
PD6/INT2
PD1~PD5
PORT D
256 BYTE RAM
7872 BYTE ROM
ACCUMULATOR A
INDEX REGISTER X
CONDITION CODE REGISTER CC
STACK POINTER SP
PROGRAM COUNTER "HIGH" PCH
PROGRAM COUNTER "LOW" PCL
CPU
ALU
CPU CONTROL
59 RESET
61 STBY
60 INT
OSC
62 XTAL
63 EXTAL
TIMER/COUNTER
PRESCALER
1 TIMER
TIMER CONTROL
PORT E
34~41
PE0~PE7
PORT F
42~49
PF0~PF7
PORT G
50~57
PG0~PG7

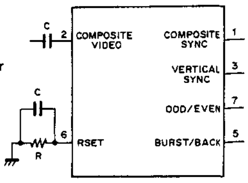

27 PD1
28 PD2
29 PD3
30 PD4
31 PD5
32 PD6/INT2
33 PD7
59 RESET
61 STBY
60 INT
1 TIMER
62 XTAL
63 EXTAL
25 PC0
24 PC1
23 PC2
22 PC3
21 PC4
20 PC5/CK
19 PC6/RX
18 PC7/TX
57 PG0
56 PG1
55 PG2
54 PG3
53 PG4
52 PG5
51 PG6
50 PG7
PE0 34
PE1 35
PE2 36
PE3 37
PE4 38
PE5 39
PE6 40
PE7 41
PF0 42
PF1 43
PF2 44
PF3 45
PF4 46
PF5 47
PF6 48
PF7 49
PA0 9
PA1 8
PA2 7
PA3 6
PA4 5
PA5 4
PA6 3
PA7 2
PB0 17
PB1 16
PB2 15
PB3 14
PB4 13
PB5 12
PB6 11
PB7 10

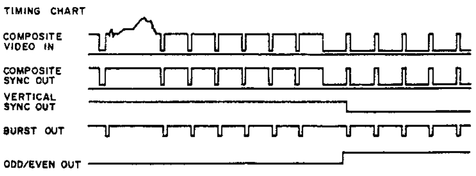
PA0~PA7 : 8-BIT I/O PORT A
PB0~PB7 : 8-BIT I/O PORT B
PC0~PC7 : 8-BIT I/O PORT C
PD1~PD7 : 7-BIT IN PORT D
PE0~PE7 : 8-BIT OUT PORT E
PF0~PF7 : 8-BIT OUT PORT F
PG0~PG7 : 8-BIT I/O PORT G
RESET : RESET IN
STBY : STANDBY IN
INT : INTERRUPT IN
INT2 : INTERRUPT IN
TIMER : TIMER CONTROL IN
XTAL : CRYSTAL
EXTAL : EXTERNAL CRYSTAL IN
CK : SERIAL INTERFACE CLOCK I/O
RX : SERIAL DATA RECEIVE
TX : SERIAL DATA TRANSMIT

LM1881M (NS) FLAT PACKAGE

VIDEO SYNC SEPARATOR
- TOP VIEW -

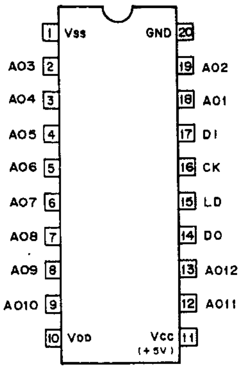

COMPOSITE SYNC OUT 1
COMPOSITE VIDEO IN 2
VERTICAL SYNC OUT 3
4 GND
Vcc (+5 to +12V) 8
7 ODD/EVEN OUT
6 RSET
5 BURST/BACK OUT

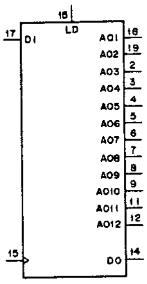

C
2
COMPOSITE VIDEO
COMPOSITE SYNC 1
VERTICAL SYNC 3
ODD/EVEN 7
C
R
6
RSET
BURST/BACK 5



M62352GP (MITSUBISHI) FLAT PACKAGE

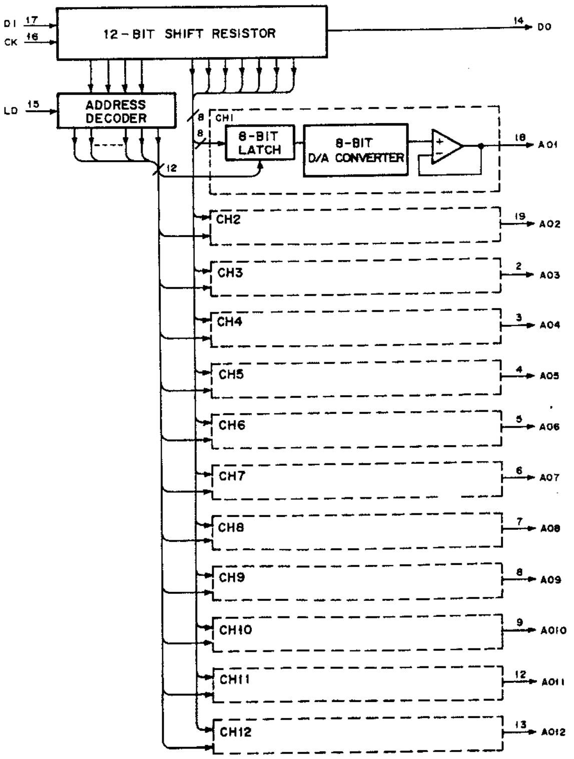
C-MOS 8-BITx12 CHANNEL D/A CONVERTER
(WITH BUFFER OPERATIONAL AMPLIFIER)
– TOP VIEW –


1 Vss
GND 20
AO3 2
19 AO2
AO4 3
18 AO1
AO5 4
17 DI
AO6 5
16 CK
AO7 6
15 LD
AO8 7
14 DO
AO9 8
13 AO12
AO10 9
12 AO11
10 VDD
Vcc (+5V) 11


16
LD
17 DI
AO1 18
AO2 19
AO3 2
AO4 3
AO5 4
AO6 5
AO7 6
AO8 7
AO9 8
AO10 9
AO11 11
AO12 12
15
DO 14

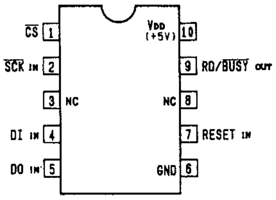
AO1 - AO12 : 8-BIT D/A OUTPUT
CK : CLOCK INPUT
DI : SERIAL DATA INPUT
DO : DATA OUTPUT

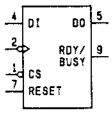
NOTE :
3.5V < VDD < Vcc
– 3.5V < Vss < Vcc


DI 17
CK 16
12-BIT SHIFT RESISTOR
14 DO
LD 15
ADDRESS DECODER
8
8
CH1
8-BIT LATCH
8-BIT D/A CONVERTER
12
18 AO1
CH2
19 AO2
CH3
2 AO3
CH4
3 AO4
CH5
4 AO5
CH6
5 AO6
CH7
6 AO7
CH8
7 AO8
CH9
8 AO9
CH10
9 AO10
CH11
12 AO11
CH12
13 AO12

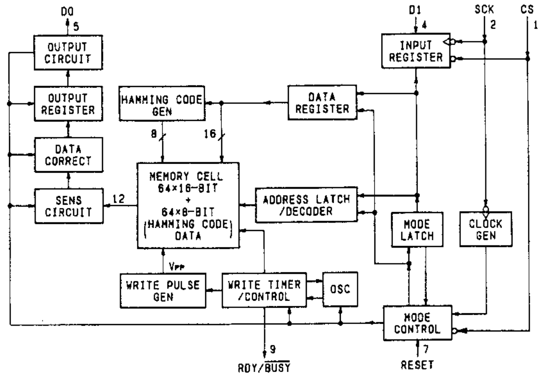
M6M80011AFP (MITSUBISHI) FLAT PACKAGE

C-MOS 1k (64x16) BIT ERASABLE PROM
– TOP VIEW –


CS 1
SCK IN 2
3 NC
DI IN 4
DO IN 5
VDD (+5V) 10
9 RD/BUSY OUT
NC 8
7 RESET IN
GND 6

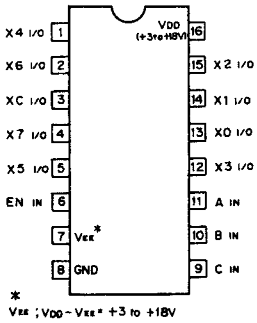

4 DI
DO 5
2
RDY/ BUSY 9
1 CS
7 RESET

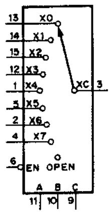
CS	:	CHIP SELECT INPUT
DI	:	DATA INPUT
DO	:	DATA OUTPUT
RDY/BUSY	:	BUSY OUTPUT
RESET	:	RESET INPUT
SCK	:	CLOCK INPUT


DO
5
OUTPUT CIRCUIT
OUTPUT REGISTER
HAMMING CODE GEN
DATA REGISTER
DATA CORRECT
8
16
SENS CIRCUIT
12
MEMORY CELL 64×16-BIT + 64×8-BIT (HAMMING CODE) DATA
ADDRESS LATCH /DECODER
VPP
WRITE PULSE GEN
WRITE TIMER /CONTROL
OSC
D1
4
SCK
2
CS
1
INPUT REGISTER
MODE LATCH
CLOCK GEN
MODE CONTROL
9
RDY/BUSY
7
RESET

MC14051BF (MOTOROLA) FLAT PACKAGE

C-MOS 8-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
– TOP VIEW –


X4 I/O 1
X6 I/O 2
XC I/O 3
X7 I/O 4
X5 I/O 5
EN IN 6
7 VEE*
8 GND
VDD (+3to+18V) 16
15 X2 I/O
14 X1 I/O
13 X0 I/O
12 X3 I/O
11 A IN
10 B IN
9 C IN


13 X0
14 X1
15 X2
12 X3
1 X4
5 X5
2 X6
4 X7
XC 3
6 EN OPEN
A B C
11 10 9

CONTROL INPUTS				SELECTED CHANNEL
EN	SELECT			
	C	B	A	
0	0	0	0	X0
0	0	0	1	X1
0	0	1	0	X2
0	0	1	1	X3
0	1	0	0	X4
0	1	0	1	X5
0	1	1	0	X6
0	1	1	1	X7
1	X	X	X	OPEN

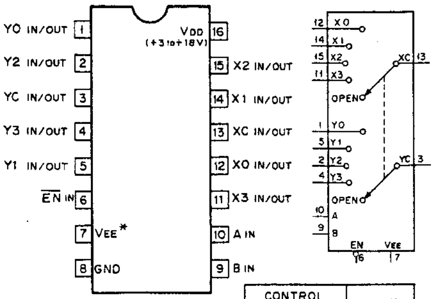
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

X0 to X7; ANALOG INPUTS/OUTPUTS
XC; COMMON INPUT/OUTPUT
A,B,C; CHANNEL SELECT INPUT
EN; ENABLE INPUT

*
VEE ; VDD – VEE = +3 to +18V

MC14052BF (MOTOROLA) FLAT PACKAGE

C-MOS DUAL 4-CHANNEL ANALOG MULTIPLEXERS/DEMULTIPLEXERS
– TOP VIEW –


Y0 IN/OUT 1
Y2 IN/OUT 2
YC IN/OUT 3
Y3 IN/OUT 4
Y1 IN/OUT 5
EN IN 6
7 VEE*
8 GND
VDD (+3 to +18V) 16
15 X2 IN/OUT
14 X1 IN/OUT
13 XC IN/OUT
12 X0 IN/OUT
11 X3 IN/OUT
10 A IN
9 B IN
12 X0
14 X1
15 X2
11 X3
XC 13
OPEN
1 Y0
5 Y1
2 Y2
4 Y3
YC 3
OPEN
10 A
9 B
EN 16
VEE 17

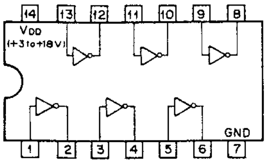
VEE* ; VDD – VEE = +3 to +18V

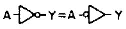
CONTROL INPUTS			"ON" CHANNEL
EN	B	A	
0	0	0	0
0	0	1	1
0	1	0	2
0	1	1	3
1	X	X	OPEN

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

MC14069UBF (MOTOROLA)

C-MOS INVERTER
– TOP VIEW –


14
13
12
11
10
9
8
VDD (+3 to +18V)
GND
1
2
3
4
5
6
7



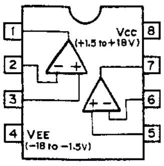
$Y = \overline{A}$

A	Y
0	1
1	0

0; LOW LEVEL
1; HIGH LEVEL

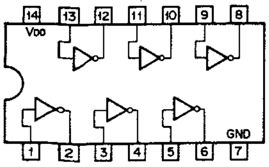
MC34182M (MOTOROLA) FLAT PACKAGE
TL062CPS (TI) FLAT PACKAGE

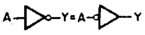
OPERATIONAL AMPLIFIER
(JFET INPUT)
– TOP VIEW –


1
2
3
4 VEE (–18 to –1.5V)
Vcc (+1.5 to +18V) 8
7
6
5
– +
+ –

MC74AC04M (MOTOROLA) FLAT PACKAGE

C-MOS HEX INVERTERS
– TOP VIEW –


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7



$Y = \overline{A}$

A	Y
0	1
1	0

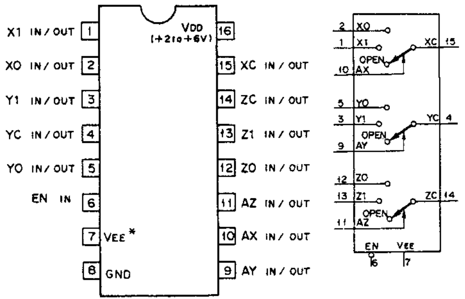
0: LOW LEVEL
1: HIGH LEVEL

NOTE :

TYPE	VDD
74HCT04 TYPE	+5V
TC74AC04 TYPE	+2 to +5.5V
74ACT04 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

MC74HC4053F (MOTOROLA) FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
– TOP VIEW –


X1 IN/OUT 1
X0 IN/OUT 2
Y1 IN/OUT 3
YC IN/OUT 4
Y0 IN/OUT 5
EN IN 6
7 VEE*
8 GND
VDD (+2 to +6V) 16
15 XC IN/OUT
14 ZC IN/OUT
13 Z1 IN/OUT
12 Z0 IN/OUT
11 AZ IN/OUT
10 AX IN/OUT
9 AY IN/OUT
2 X0
1 X1
XC 15
OPEN
10 AX
5 Y0
3 Y1
YC 4
OPEN
9 AY
12 Z0
13 Z1
ZC 14
OPEN
11 AZ
EN 16
VEE 17

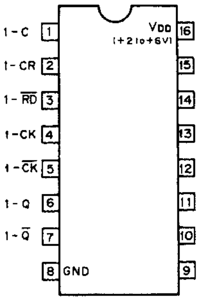
VEE* ; VDD – VEE = +3 to +12V
VEE ≦ GND

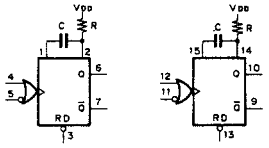
CONT. INPUTS		ON CHANNEL
EN	A (X,Y,Z,)	
0	0	0
0	1	1
1	X	OPEN

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

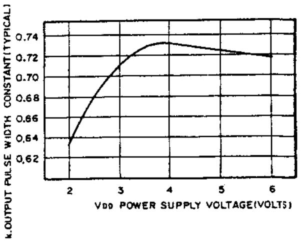
TC74HC4538AF (TOSHIBA) FLAT PACKAGE

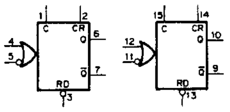
C - MOS DUAL RETRIGGERABLE / NON - RETRIGGERABLE MONOSTABLE MULTIVIBRATOR
– TOP VIEW –


1-C 1
1-CR 2
1-RD 3
1-CK 4
1-CK 5
1-Q 6
1-Q 7
8 GND
VDD (+2 to +6V) 16
15 2-C
14 2-CR
13 2-RD
12 2-CK
11 2-CK
10 2-Q
9 2-Q

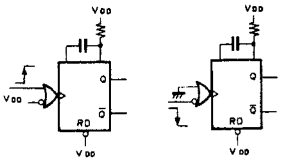

VDD
C
R
1
2
4
5
Q 6
Q 7
RD
3
VDD
C
R
15
14
12
11
Q 10
Q 9
RD
13

OUTPUT PULSE WIDTH = k·C·R

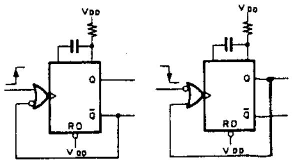



1
2
C
CR
Q 6
Q 7
4
5
RD
3
15
14
C
CR
Q 10
Q 9
12
11
RD
13

RETRIGGERABLE M.M.V

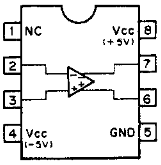

VDD
Q
Q
RD
VDD
VDD
VDD
Q
Q
RD
VDD

NON-RETRIGGERABLE M.M.V


VDD
Q
Q
RD
VDD
VDD
Q
Q
RD
VDD

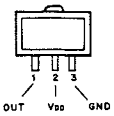
NJM360M (JRC) FLAT PACKAGE

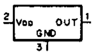
HIGH SPEED VOLTAGE COMPARATOR
(TTL OUTPUT)
– TOP VIEW –


1 NC
2
3
4 Vcc (–5V)
Vcc (+5V) 8
7
6
GND 5
–
+

S-8054ALR-LN (SEIKO)

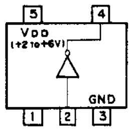
C-MOS VOLTAGE DETECTOR
– TOP VIEW –

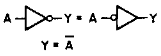

1
2
3
OUT
VDD
GND


2
VDD
OUT
1
GND
3

SC7S04F (MOTOROLA) FLAT PACKAGE
TC7S04F (TOSHIBA) FLAT PACKAGE

C-MOS INVERTER
– TOP VIEW –


5
4
VDD
(+2 to+6V)
GND
1
2
3



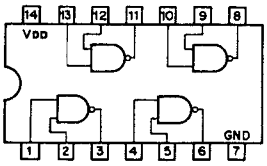
$Y = \overline{A}$

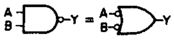
A	Y
0	1
1	0

0; LOW LEVEL
1; HIGH LEVEL

SN74HC00ANS (TI) FLAT PACKAGE

C-MOS QUAD 2-INPUT NAND GATES
– TOP VIEW –


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7



$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

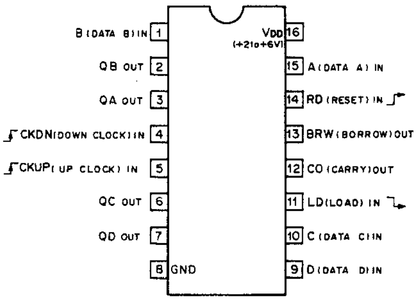
0; LOW LEVEL
1; HIGH LEVEL

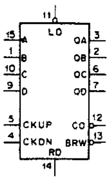
NOTE :

TYPE	VDD
TC74AC00 TYPE	+2 to +5.5V
MC74HCT00N	+5V
74ACT00 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC193ANS (TI) FLAT PACKAGE

C-MOS PRESETTABLE SYNCHRONOUS 4-BIT UP/DOWN COUNTER
– TOP VIEW –


B (DATA B) IN 1
QB OUT 2
QA OUT 3
CKDN(DOWN CLOCK) IN 4
CKUP(UP CLOCK) IN 5
QC OUT 6
QD OUT 7
8 GND
VDD 16
(+2to+6V)
15 A (DATA A) IN
14 RD (RESET) IN
13 BRW (BORROW) OUT
12 CO (CARRY) OUT
11 LD(LOAD) IN
10 C (DATA C) IN
9 D (DATA D) IN


11
LD
15
A
1
B
10
C
9
D
QA
3
QB
2
QC
6
QD
7
5
CKUP
4
CKDN
CO
12
BRW
13
RD
14

CONTROL INPUT				MODE
RD	LD	CKUP	CKDN	
1	X	X	X	RESET TO ZERO
0	0	X	X	PRESET
0	1	↑	1	UP COUNT
0	1	1	↑	DOWN COUNT
0	1	1	1	NO COUNT

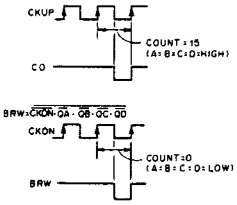
COUNT	OUTPUT			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

UP COUNT
DOWN COUNT

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

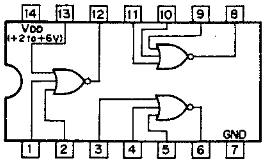
$CO = \overline{\overline{CKUP} \cdot QA \cdot QB \cdot QC \cdot QD}$

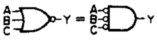
$BRW = \overline{\overline{CKDN} \cdot \overline{QA} \cdot \overline{QB} \cdot \overline{QC} \cdot \overline{QD}}$


CKUP
COUNT = 15
(A=B=C=D=HIGH)
CO
CKDN
COUNT=0
(A=B=C=D=LOW)
BRW

SN74HC27ANS (TI) FLAT PACKAGE

C-MOS 3-LINE POSITIVE-NOR GATE
– TOP VIEW –


14
13
12
11
10
9
8
VDD
(+2 to+6V)
GND
1
2
3
4
5
6
7



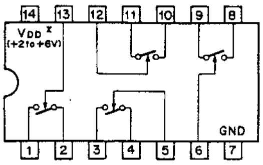
$Y = \overline{A + B + C} = \overline{A} \cdot \overline{B} \cdot \overline{C}$

A	B	C	Y
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	0

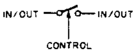
0; LOW LEVEL
1; HIGH LEVEL

SN74HC4066NS (TI) FLAT PACKAGE

C-MOS BILATERAL ANALOG SWITCH
– TOP VIEW –

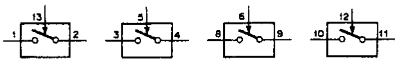

14
13
12
11
10
9
8
VDD X
(+2to+6V)
GND
1
2
3
4
5
6
7

X MC74HC4066N; +3 to+12V


IN/OUT
IN/OUT
CONTROL

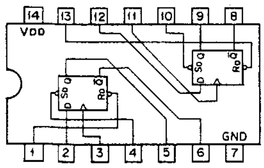
CONTROL	SWITCH
0	OFF
1	ON

0; LOW LEVEL
1; HIGH LEVEL


13
1
2
5
3
4
6
8
9
12
10
11

SN74HC74ANS (TI) FLAT PACKAGE

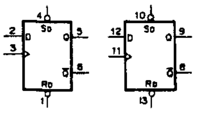
C-MOS DUAL D-TYPE FLIP-FLOPS WITH DIRECT SET/RESET
– TOP VIEW –



14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7

INPUTS				OUTPUTS	
$\overline{S_D}$	$\overline{R_D}$	CK	D	Qn+1	$\overline{Qn+1}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1	1
1	1	↑	1	1	0
1	1	↑	0	0	1
1	1	0	X	Qn	$\overline{Qn}$

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE



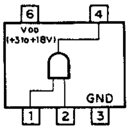
4
2
3
1
5
6
10
12
11
13
9
8

NOTE :

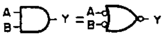
TYPE	VDD
TC74HCT74AF	+5V
TC74AC74 TYPE	+2 to +5.5V
74ACT74 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

TC4S81F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT AND GATE
– TOP VIEW –



6
4
VDD
(+3 to +18V)
GND
1
2
3



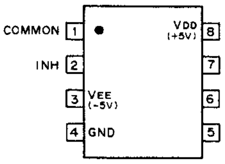
$Y = A \cdot B = \overline{\overline{A} + \overline{B}}$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

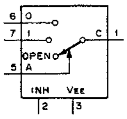
0: LOW LEVEL
1: HIGH LEVEL

TC4W53F (TOSHIBA) FLAT PACKAGE

C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER
– TOP VIEW –



COMMON 1
INH 2
3 VEE (−5V)
4 GND
VDD (+5V) 8
7 CH1
6 CH0
5 A



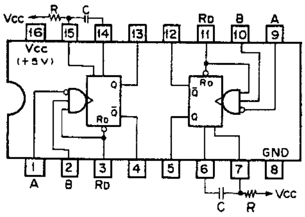
6
0
7
1
C
1
OPEN
5
A
INH
VEE
2
3

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

CONT. INPUT		ON CHANNEL
INH	A	
0	0	0
0	1	1
1	X	OPEN

SN74LS123NS (TI) FLAT PACKAGE

TTL RETRIGGERABLE MONOSTABLE MULTIVIBRATOR WITH DIRECT RESET
– TOP VIEW –

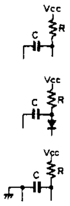


Vcc
R
C
RD
B
A
16
15
14
13
12
11
10
9
Vcc (+5V)
GND
1
2
3
4
5
6
7
8
A
B
RD
C
R
Vcc

INPUTS			OUTPUTS	
RD	A	B	Q	$\overline{Q}$
0	X	X	0	1
X	1	X	0	1
X	X	0	0	1
1	0	↑	⊓	⊔
1	↓	1	⊓	⊔
↑	0	1	⊓	⊔

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

OUTPUT PULSE WIDTH



Vcc
C
R
Vcc
C
R
Vcc
C
R

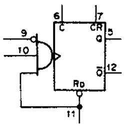
'123 ; $T_W = 0.28 \left(1 + \frac{700}{R}\right) CR$

'L123; $T_W = 0.33 \left(1 + \frac{700}{R}\right) CR$

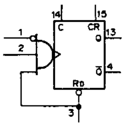
'123 ; $T_W = 0.25 \left(1 + \frac{700}{R}\right) CR$

'L123; $T_W = 0.29 \left(1 + \frac{700}{R}\right) CR$

'LS123; $T_W = 0.45 CR$



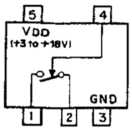
6
7
9
10
C
CR
Q
Q̄
RD
5
12
11



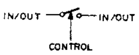
14
15
1
2
C
CR
Q
Q̄
RD
13
4
3

TC4S66F (TOSHIBA)

C-MOS BILATERAL ANALOG SWITCH
– TOP VIEW –



5
4
VDD
(+3 to +18V)
GND
1
2
3



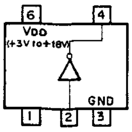
IN/OUT
IN/OUT
CONTROL

CONTROL	SWITCH
0	OFF
1	ON

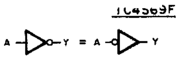
0; LOW LEVEL
1; HIGH LEVEL

TC4S69F (TOSHIBA) FLAT PACKAGE

C-MOS INVERTER BUFFER
– TOP VIEW –



6
4
VDD
(+3V to +18V)
GND
1
2
3



TC4S69F
A
Y
A
Y

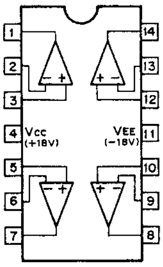
$Y = \overline{A}$

A	Y
0	1
1	0

0; LOW LEVEL
1; HIGH LEVEL

TL064CNS (TI) FLAT PACKAGE

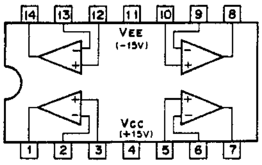
OPERATIONAL AMPLIFIER
(J FET-INPUT)
– TOP VIEW –



1
2
3
4 Vcc (+18V)
5
6
7
14
13
12
11 VEE (−18V)
10
9
8

TL084CNS (TI) FLAT PACKAGE

OPERATIONAL AMPLIFIER
(J FET-INPUT)
– TOP VIEW –

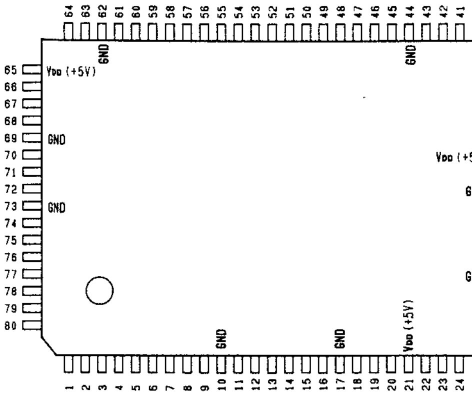


14
13
12
11
10
9
8
VEE (−15V)
Vcc (+15V)
1
2
3
4
5
6
7

UPC2372GF-3B9 (NEC) FLAT PACKAGE

3-CH PROCESS AMP & AGC

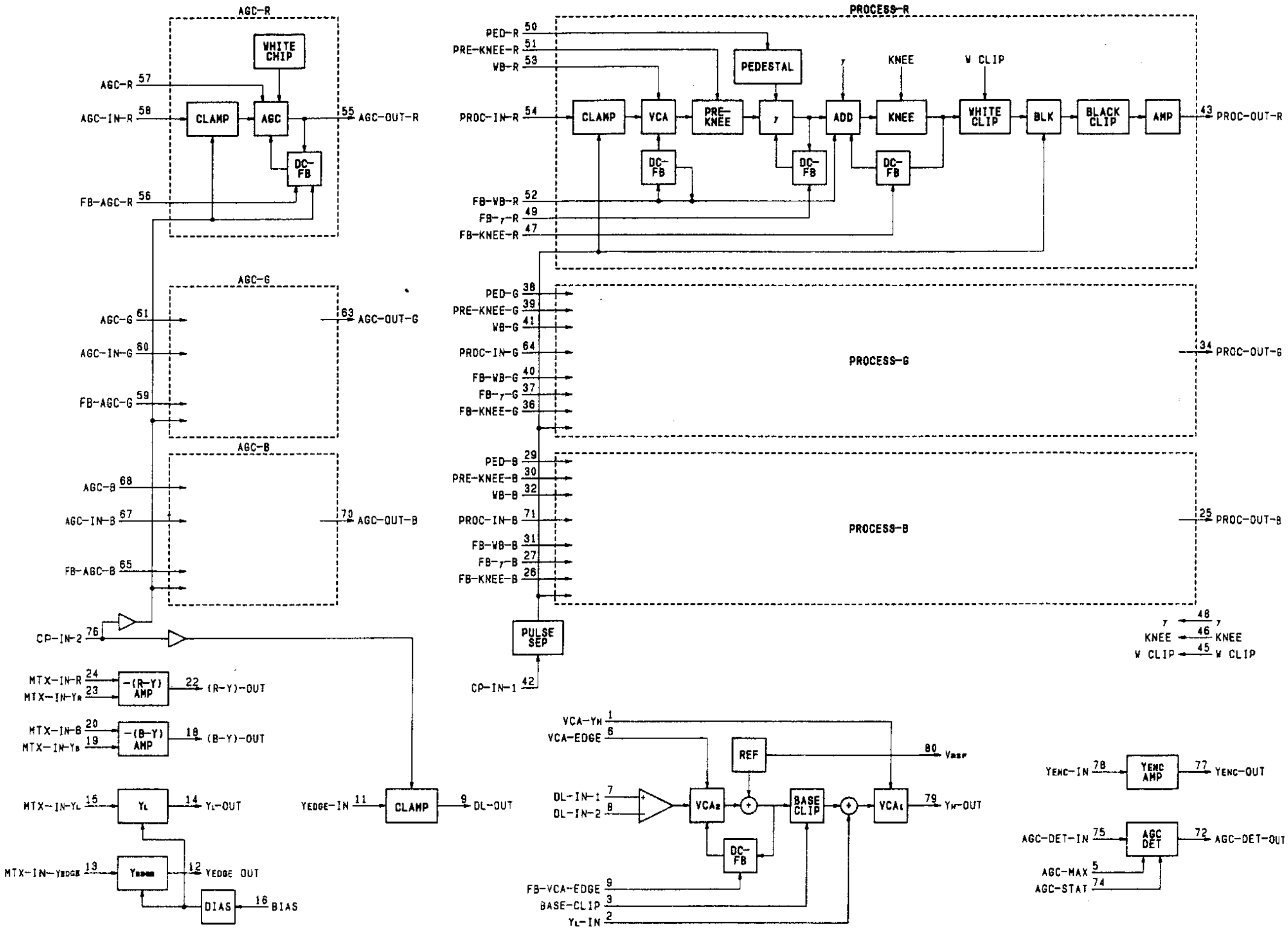
– TOP VIEW –



V_{DD} (+5V)
GND
V_{DD} (+5V)
GND
GND
GND
GND
GND
V_{DD} (+5V)

(V_{DD} = +5V)

PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL
1	I	VCA-Y_H	21	–	V_{DD}	41	I	WB-G	61	I	AGC-G
2	I	Y_L-IN	22	O	(R-Y)-OUT	42	I	CP-IN-1	62	–	GND
3	I	BASE-CLIP	23	I	MTX-IN-Y_R	43	O	PROC-OUT-R	63	O	AGC-OUT-G
4	I	FB-VCA-EDGE	24	I	MTX-IN-R	44	–	GND	64	I	PROC-IN-G
5	I	AGC-MAX	25	O	PROC-OUT-B	45	I	WCLIP	65	I	FB-AGC-B
6	I	VCA-EDGE	26	I	FB-KNEE-B	46	I	KNEE	66	–	V_{DD}
7	I	DL-IN1	27	I	FB-γ-B	47	I	FB-KNEE-R	67	I	AGC-IN-B
8	I	DL-IN2	28	–	GND	48	I	γ	68	I	AGC-B
9	O	DL-OUT	29	I	PED-B	49	I	FB-γ-R	69	–	GND
10	–	GND	30	I	Pre-KNEE-B	50	I	PED-R	70	O	AGC-OUT-B
11	I	Y_{EDGE} IN	31	I	FB-WB-B	51	I	Pre-KNEE-R	71	I	PROC-IN-B
12	O	Y_{EDGE} OUT	32	I	WB-B	52	I	FB-WB-R	72	O	AGC-DET-OUT
13	I	MTX-IN-Y_{EDGE}	33	–	GND	53	I	WB-R	73	–	GND
14	O	Y_L-OUT	34	O	PROC-OUT-G	54	I	PROC-IN-R	74	I	AGC STAT
15	I	MIX-IN-Y_L	35	–	V_{DD}	55	O	AGC-OUT-R	75	I	AGC-DET-IN
16	O	BIAS	36	I	FB-KNEE-G	56	I	FB-AGC-R	76	I	CP-IN-2
17	–	GND	37	I	FB-γ-G	57	I	AGC-R	77	O	Y_{ENC}-OUT
18	O	(B-Y)-OUT	38	I	PED-G	58	I	AGC-IN-R	78	I	Y_{ENC}-IN
19	I	MTX-IN-Y_B	39	I	Pre-KNEE-G	59	I	FB-AGC-G	79	O	Y_H-OUT
20	I	MTX-IN-B	40	I	FB-WB-G	60	I	AGC-IN-G	80	O	V_{REF}



AGC-R
WHITE CHIP
AGC-R 57
AGC-IN-R 58
CLAMP
AGC
DC-FB
55 AGC-OUT-R
FB-AGC-R 56
AGC-G
AGC-G 61
AGC-IN-G 60
FB-AGC-G 59
63 AGC-OUT-G
AGC-B
AGC-B 68
AGC-IN-B 67
FB-AGC-B 65
70 AGC-OUT-B
CP-IN-2 76
PROCESS-R
PED-R 50
PRE-KNEE-R 51
WB-R 53
PROC-IN-R 54
PEDESTAL
γ
KNEE
W CLIP
CLAMP
VCA
PRE-KNEE
γ
ADD
KNEE
WHITE CLIP
BLK
BLACK CLIP
AMP
43 PROC-OUT-R
DC-FB
DC-FB
DC-FB
FB-WB-R 52
FB-γ-R 49
FB-KNEE-R 47
PED-G 38
PRE-KNEE-G 39
WB-G 41
PROC-IN-G 64
FB-WB-G 40
FB-γ-G 37
FB-KNEE-G 36
PROCESS-G
34 PROC-OUT-G
PED-B 29
PRE-KNEE-B 30
WB-B 32
PROC-IN-B 71
FB-WB-B 31
FB-γ-B 27
FB-KNEE-B 26
PROCESS-B
25 PROC-OUT-B
PULSE SEP
CP-IN-1 42
γ 48 γ
KNEE 46 KNEE
W CLIP 45 W CLIP
MTX-IN-R 24
MTX-IN-Y_R 23
-(R-Y) AMP
22 (R-Y)-OUT
MTX-IN-B 20
MTX-IN-Y_B 19
-(B-Y) AMP
18 (B-Y)-OUT
MTX-IN-Y_L 15
Y_L
14 Y_L-OUT
MTX-IN-Y_{EDGE} 13
Y_{EDGE}
12 Y_{EDGE} OUT
BIAS
16 BIAS
Y_{EDGE}-IN 11
CLAMP
9 DL-OUT
VCA-Y_H 1
VCA-EDGE 6
REF
80 V_{REF}
DL-IN-1 7
DL-IN-2 8
VCA_E
+
BASE CLIP
+
VCA_L
79 Y_H-OUT
DC-FB
FB-VCA-EDGE 4
BASE-CLIP 3
Y_L-IN 2
Y_{ENC}-IN 78
Y_{ENC} AMP
77 Y_{ENC}-OUT
AGC-DET-IN 75
AGC DET
72 AGC-DET-OUT
AGC-MAX 5
AGC-STAT 74

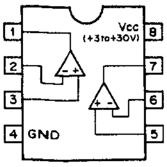
INPUT

AGC STAT ; AGC THRESHOLD CONTROL
AGC-B ; AGC GAIN CONTROL FOR B-CH
AGC-DET-IN ; AGC DETECT
AGC-G ; AGC GAIN CONTROL FOR G-CH
AGC-IN-B ; B-CH AGC
AGC-IN-G ; G-CH AGC
AGC-IN-R ; R-CH AGC
AGC-MAX ; AGC MAX GAIN CONTROL
AGC-R ; AGC GAIN CONTROL FOR R-CH
BASE-CLIP ; BASE CLIP QUANTITY CONTROL FOR HORIZONTAL EDGE COMPENSATION SIGNAL
CP-IN-1 ; CLAMP PULSE/BLANKING PULSE
CP-IN-2 ; CLAMP PULSE FOR AGC CIRCUIT
DL-IN1 ; NON-INVERT INPUT FOR HORIZONTAL EDGE COMPENSATION DIFFERENTIAL AMPLIFIER
DL-IN2 ; INVERT INPUT FOR HORIZONTAL EDGE COMPENSATION DIFFERENTIAL AMPLIFIER
FB-AGC-B ; DC FEEDBACK FOR B-CH AGC
FB-AGC-G ; DC FEEDBACK FOR G-CH AGC
FB-AGC-R ; DC FEEDBACK FOR R-CH AGC
FB-KNEE-B ; DC FEEDBACK FOR B-CH KNEE
FB-KNEE-G ; DC FEEDBACK FOR G-CH KNEE
FB-KNEE-R ; DC FEEDBACK FOR R-CH KNEE
FB-VCA-EDGE ; CAPACITOR FOR DC FEEDBACK
FB-WB-B ; DC FEEDBACK FOR B-CH WHITE BALANCE
FB-WB-G ; DC FEEDBACK FOR G-CH WHITE BALANCE
FB-WB-R ; DC FEEDBACK FOR R-CH WHITE BALANCE
FB-γ-B ; DC FEEDBACK FOR B-CH γ
FB-γ-G ; DC FEEDBACK FOR G-CH γ
FB-γ-R ; DC FEEDBACK FOR R-CH γ
KNEE ; KNEE CONTROL
MTX-IN-B ; B-Y SIGNAL MATRIX INPUT
MTX-IN-R ; R-Y SIGNAL MATRIX INPUT
MTX-IN-YB ; B-Y SIGNAL MATRIX INPUT
MTX-IN-YEDGE ; LUMINANCE SIGNAL MATRIX FOR HORIZONTAL EDGE COMPENSATION
MTX-IN-YL ; LUMINANCE SIGNAL MATRIX
MTX-IN-YR ; R-Y SIGNAL MATRIX
PED-B ; PEDESTAL CONTROL FOR B-CH
PED-G ; PEDESTAL CONTROL FOR G-CH
PED-R ; PEDESTAL CONTROL FOR R-CH
Pre-KNEE-B ; Pre-KNEE CONTROL FOR B-CH
Pre-KNEE-G ; Pre-KNEE CONTROL FOR G-CH
Pre-KNEE-R ; Pre-KNEE CONTROL FOR R-CH
PROC-IN-B ; B-CH PROCESS
PROC-IN-G ; G-CH PROCESS
PROC-IN-R ; R-CH PROCESS
VCA-EDGE ; OUTPUT LEVEL CONTROL FOR HORIZONTAL EDGE COMPENSATED LUMINANCE SIGNAL
VCA-YH ; HORIZONTAL EDGE COMPENSATED OUTPUT LEVEL CONTROL
WB-B ; WHITE BALANCE CONTROL FOR B-CH
WB-G ; WHITE BALANCE CONTROL FOR G-CH
WB-R ; WHITE BALANCE CONTROL FOR R-CH
WCLIP ; WHITE CLIP LEVEL CONTROL
YEDGE IN ; LUMINANCE SIGNAL FOR HORIZONTAL EDGE COMPENSATION
YENC-IN ; LUMINANCE SIGNAL AMPLIFIER
YL-IN ; INPUT FOR LUMINANCE SIGNAL
γ ; γ CONTROL

OUTPUT

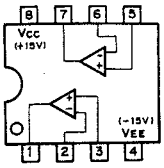
AGC-DET-OUT ; AGC DETECT
AGC-OUT-B ; B-CH AGC
AGC-OUT-G ; G-CH AGC
AGC-OUT-R ; R-CH AGC
BIAS ; BIAS
DL-OUT ; HORIZONTAL EDGE COMPENSATION SIGNAL FOR LUMINANCE SIGNAL
PROC-OUT-B ; B-CH PROCESS
PROC-OUT-G ; G-CH PROCESS
PROC-OUT-R ; R-CH PROCESS
VREF ; VREF (2.0V)
YEDGE-OUT ; MATRIX OF LUMINANCE SIGNAL FOR HORIZONTAL EDGE COMPENSATION
YENC-OUT ; LUMINANCE SIGNAL AMPLIFIER
YH-OUT ; OUTPUT OF APARTURE COMPENSATION CIRCUIT
YL-OUT ; LUMINANCE SIGNAL MATRIX OUTPUT
(B-Y)-OUT ; B-Y SIGNAL MATRIX
(R-Y)-OUT ; R-Y SIGNAL MATRIX

UPC358G2 (NEC) FLAT PACKAGE
DUAL OPERATIONAL AMPLIFIERS
– TOP VIEW –



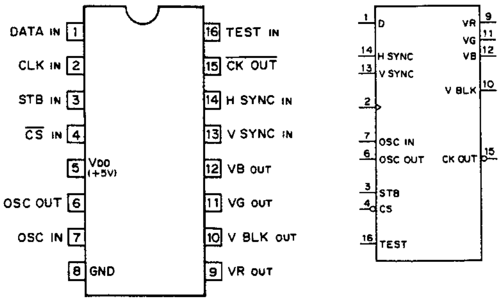
1
2
3
4
GND
Vcc
(+3to+30V)
8
7
6
5

UPC4558G2 (NEC) FLAT PACKAGE
DUAL OPERATIONAL AMPLIFIER
– TOP VIEW –



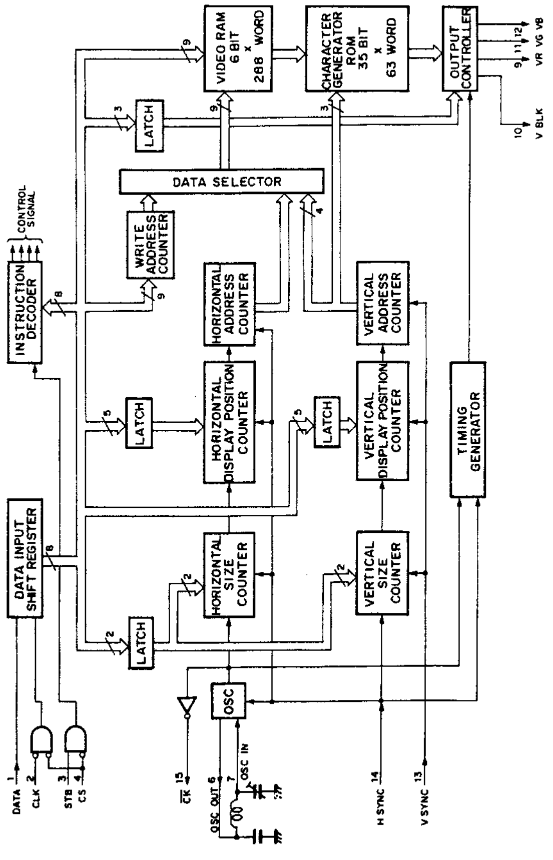
8
7
6
5
Vcc
(+15V)
(−15V)
VEE
1
2
3
4

UPD6142G-101 (NEC) FLAT PACKAGE
C-MOS 8-BIT SERIALL INPUT CHARACTER DISPLAY
– TOP VIEW –



DATA IN 1
CLK IN 2
STB IN 3
$\overline{\text{CS}}$ IN 4
5 VDD (+5V)
OSC OUT 6
OSC IN 7
8 GND
16 TEST IN
15 $\overline{\text{CK OUT}}$
14 H SYNC IN
13 V SYNC IN
12 VB OUT
11 VG OUT
10 V BLK OUT
9 VR OUT
1 D
14 H SYNC
13 V SYNC
2
7 OSC IN
6 OSC OUT
3 STB
4 CS
16 TEST
VR 9
VG 11
VB 12
V BLK 10
CK OUT 15

D; DATA INPUT
CK OUT; EQUAL TO OUTPUT OF OSC OUT
CLK; CLOCK INPUT
CS; CHIP SELECT INPUT
H SYNC; H SYNC INPUT
OSC IN, OUT; EXTERNAL TERMINAL FOR OSC
STB; STROBE INPUT
TEST; TEST CLOCK INPUT
VB; BLUE CHARACTER DATA OUTPUT
V BLK; V BLANKING OUTPUT
VG; GREEN CHARACTER DATA OUTPUT
VR; RED CHARACTER DATA OUTPUT
V SYNC; V SYNC INPUT

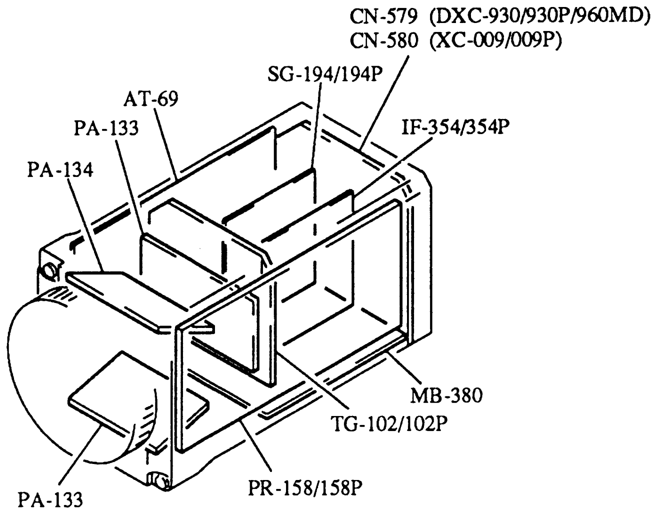


VIDEO RAM 6 BIT x 288 WORD
CHARACTER GENERATOR ROM 35 BIT x 63 WORD
OUTPUT CONTROLLER
9 11 12
VR VG VB
10 V BLK
LATCH
3
9
DATA SELECTOR
4
CONTROL SIGNAL
WRITE ADDRESS COUNTER
INSTRUCTION DECODER
8
HORIZONTAL ADDRESS COUNTER
VERTICAL ADDRESS COUNTER
LATCH
5
HORIZONTAL DISPLAY POSITION COUNTER
LATCH
VERTICAL DISPLAY POSITION COUNTER
TIMING GENERATOR
DATA INPUT SHIFT REGISTER
HORIZONTAL SIZE COUNTER
VERTICAL SIZE COUNTER
2
LATCH
OSC
1 DATA
2 CLK
3 STB
4 CS
15 $\overline{\text{CK}}$
6 OSC OUT
7 OSC IN
14 H SYNC
13 V SYNC

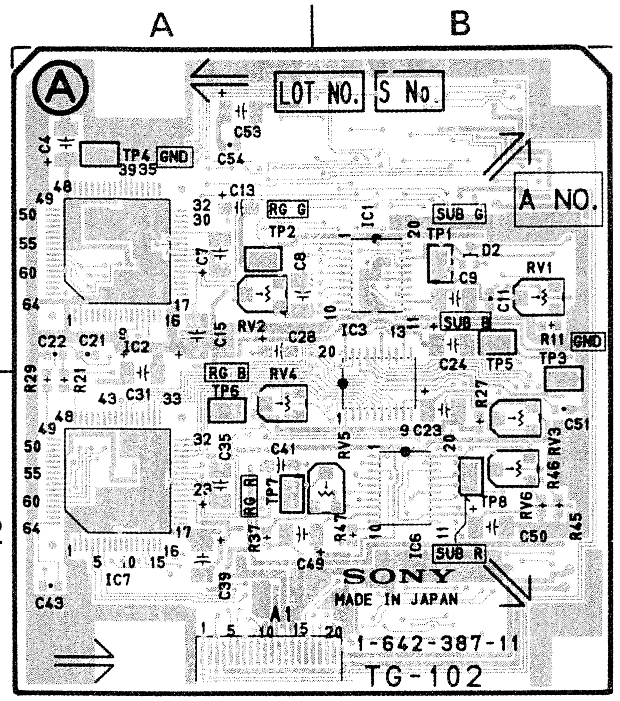
SECTION C

SCHEMATIC DIAGRAMS AND BOARD ILLUSTRATIONS

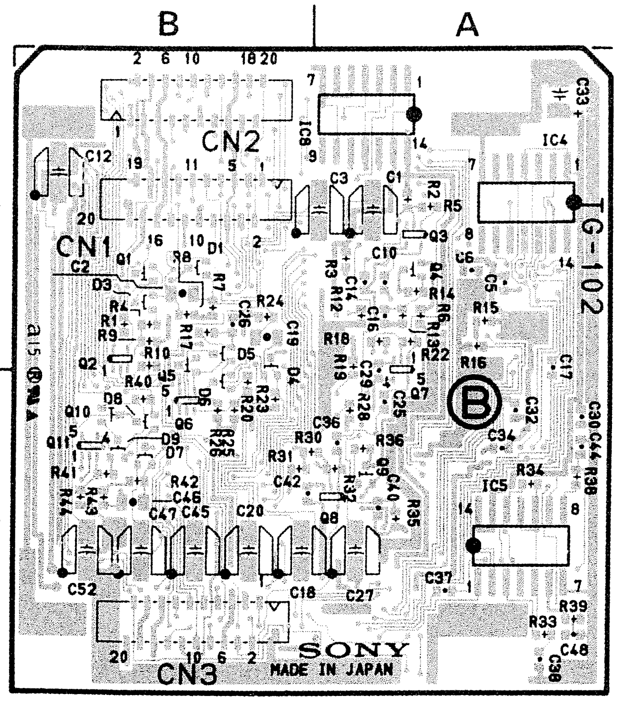
BOARD LAYOUT


CN-579 (DXC-930/930P/960MD)
CN-580 (XC-009/009P)
SG-194/194P
AT-69
PA-133
IF-354/354P
PA-134
MB-380
TG-102/102P
PR-158/158P
PA-133

TG-102/102P BOARD


A
B
1
2
Ⓐ
LOT NO.
S No.
A NO.
TP4 GND
RG G
SUB G
TP1
TP2
RV1
RV2
RV3
RV4
RV5
RV6
IC1
IC2
IC3
IC6
IC7
SUB B
TP5
R11 GND
TP3
RG B
TP6
RG R
TP7
TP8
SUB R
SONY
MADE IN JAPAN
A1
1-642-387-11
TG-102

1-642-387-11, 12, 13 COMPONENT SIDE

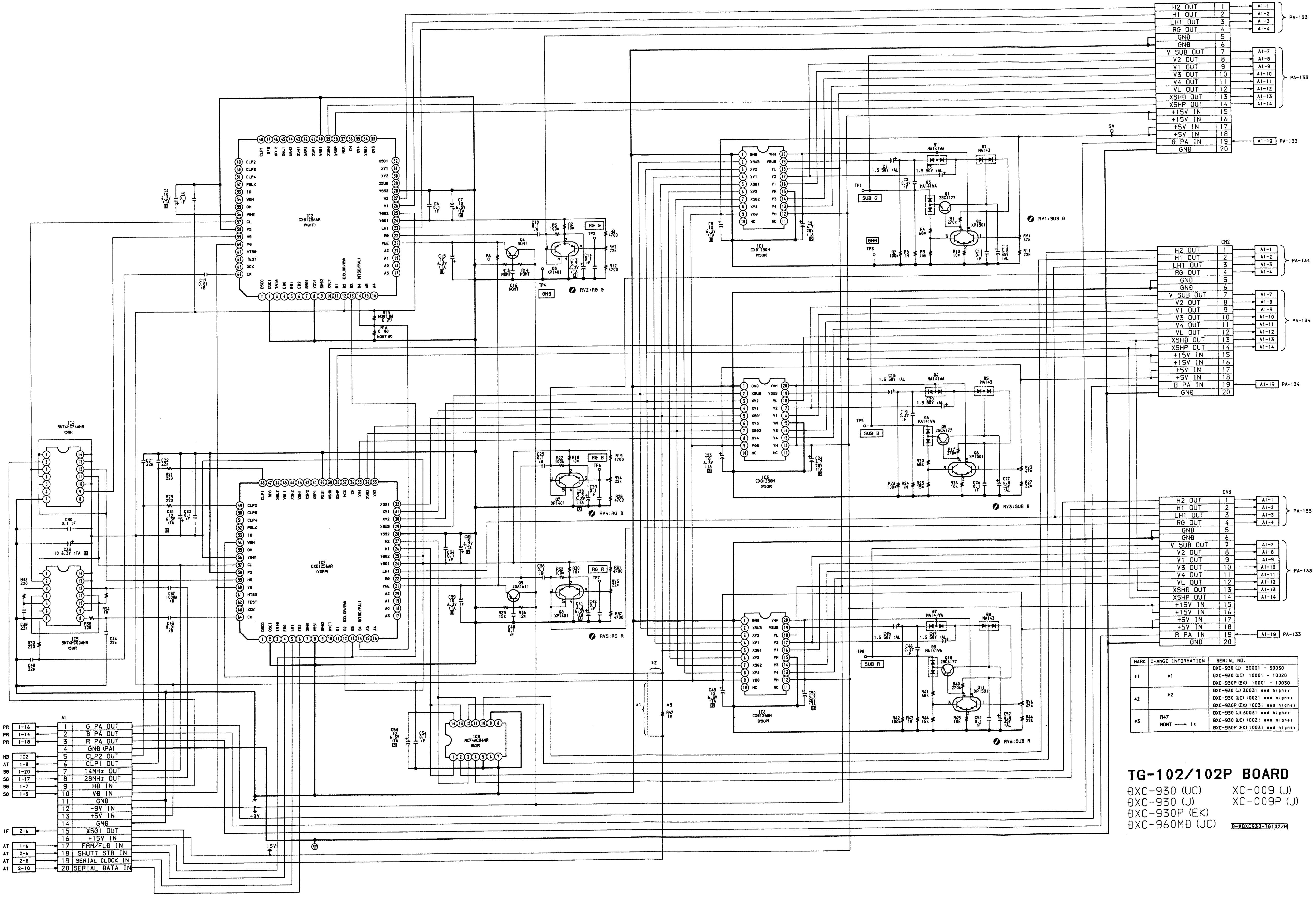

B
A
1
2
CN2
CN1
CN3
IC8
IC4
IC5
Ⓑ
TG-102
SONY
MADE IN JAPAN

1-642-387-11, 12, 13 SOLDERING SIDE

TG-102/102P (1-642-387-11, 12, 13)

CN1	B-1
CN2	B-1
CN3	B-2
D1	B-1
D2	B-1
D3	B-1
D4	B-1
D5	B-1
D6	B-1
D7	B-2
D8	B-2
D9	B-2
IC1	B-1
IC2	A-1
IC3	B-1
IC4	A-1
IC5	A-2
IC6	B-2
IC7	A-2
IC8	A-1
Q1	B-1
Q2	B-1
Q3	A-1
Q5	B-1
Q6	B-2
Q7	A-1
Q8	A-2
Q9	A-2
Q10	B-2
Q11	B-2
RV1	B-1
RV2	A-1
RV3	B-2
RV4	A-2
RV5	B-2
RV6	B-2
TP1	B-1
TP2	A-1
TP3	B-2
TP4	A-1
TP5	B-1
TP6	A-2
TP7	A-2
TP8	B-2

TG-102/102P BOARD


CN1
H2 OUT 1
H1 OUT 2
LH1 OUT 3
RG OUT 4
GND 5
GND 6
V SUB OUT 7
V2 OUT 8
V1 OUT 9
V3 OUT 10
V4 OUT 11
VL OUT 12
XSHD OUT 13
XSHP OUT 14
+15V IN 15
+15V IN 16
+5V IN 17
+5V IN 18
G PA IN 19
GND 20
PA-133
CN2
B PA IN
PA-134
CN3
R PA IN
PA-133
A1
G PA OUT 1
B PA OUT 2
R PA OUT 3
GND (PA) 4
CLP2 OUT 5
CLP1 OUT 6
14MHz OUT 7
28MHz OUT 8
HD IN 9
VD IN 10
GND 11
-9V IN 12
+5V IN 13
GND 14
XSG1 OUT 15
+15V IN 16
FRM/FLD IN 17
SHUTT STB IN 18
SERIAL CLOCK IN 19
SERIAL DATA IN 20
IC2 CXD1256AR (VQFP)
IC7 CXD1256AR (VQFP)
IC1 CXD1250N (VSOP)
IC3 CXD1250N (VSOP)
IC6 CXD1250N (VSOP)
IC4 SN74HC74ANS (SOP)
IC5 SN74HC00ANS (SOP)
IC8 MC74AC04MR (SOP)
RV1:SUB G
RV2:RG G
RV3:SUB B
RV4:RG B
RV5:RG R
RV6:SUB R
SUB G
SUB B
SUB R
RG G
RG B
RG R
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
5V
15V
-9V
1
2
3
4
5

MARK	CHANGE INFORMATION	SERIAL NO.
*1	*1	DXC-930 (J) 30001 - 30030 DXC-930 (UC) 10001 - 10020 DXC-930P (EK) 10001 - 10030
*2	*2	DXC-930 (J) 30031 and higher DXC-930 (UC) 10021 and higher DXC-930P (EK) 10031 and higher
*3	R47 NOMT → 1k	DXC-930 (J) 30031 and higher DXC-930 (UC) 10021 and higher DXC-930P (EK) 10031 and higher

TG-102/102P BOARD

DXC-930 (UC) XC-009 (J)
DXC-930 (J) XC-009P (J)
DXC-930P (EK)
DXC-960MD (UC)

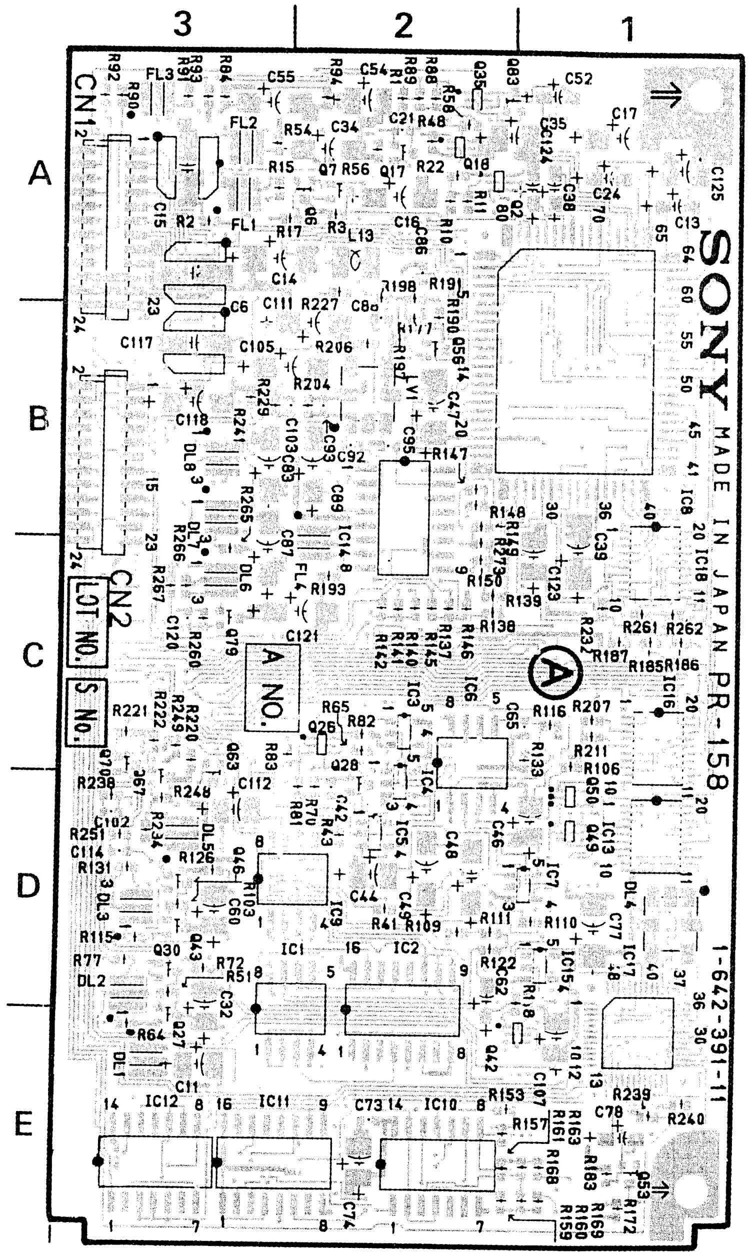
B-¥DXC930-TG102/M

PR-158/158P BOARD

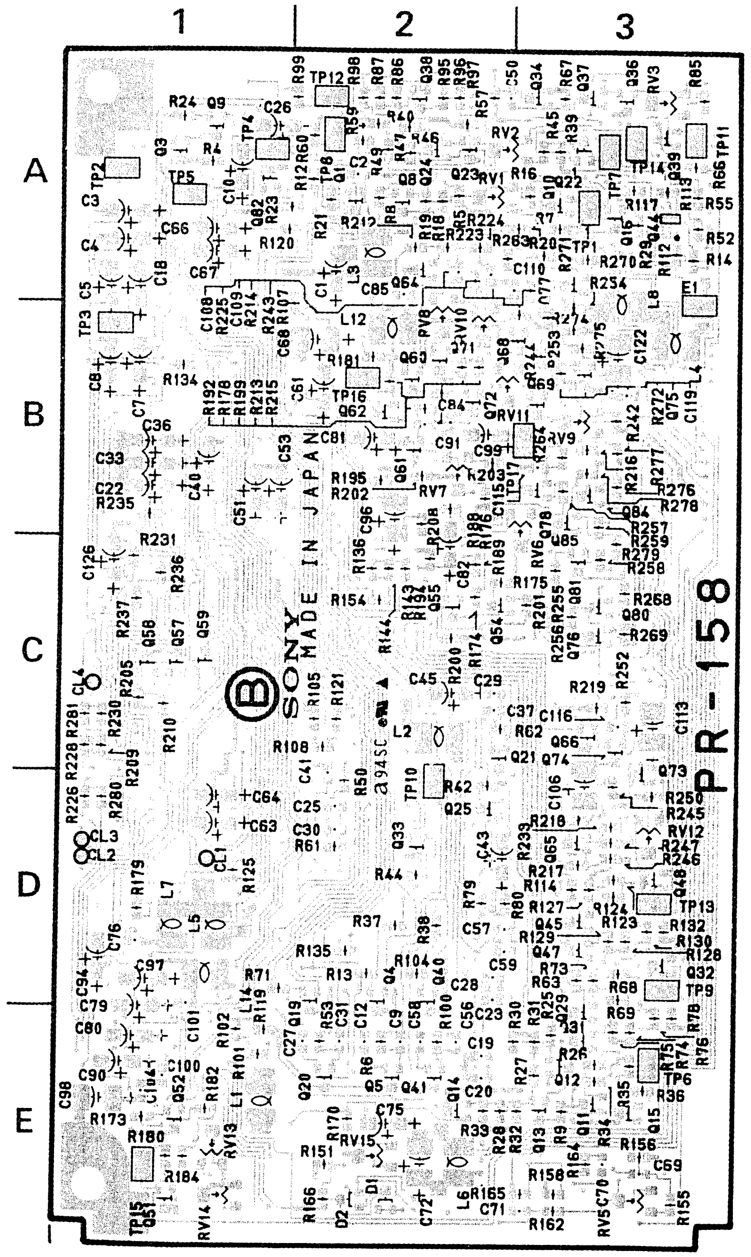
Serial No. 30001-30280 DXC-930 (J)
10001-10270 DXC-930 (UC)
10001-10480 DXC-930P (EK)
10001-10050 DXC-960MD (UC)
10001-10170 XC-009 (J)
10001-10060 XC-009P (EK)

PR-158/158P (1-642-391-11)

CN1	A-3
CN2	B-3
DL1	D-3
DL2	D-3
DL3	D-3
DL4	D-1
DL5	C-3
DL6	B-2
DL7	B-2
DL8	B-2
D1	D-2
D2	D-2
E1	A-3
FL1	A-2
FL2	A-2
FL3	A-3
FL4	B-2
IC1	D-2
IC2	D-2
IC3	C-2
IC4	C-2
IC5	C-2
IC6	C-2
IC7	C-1
IC8	B-1
IC9	C-2
IC10	D-2
IC11	D-2
IC12	D-3
IC13	C-1
IC14	B-2
IC15	D-1
IC16	C-1
IC17	D-1
IC18	B-1
LV1	A-2
Q1	A-2
Q2	A-2
Q3	A-1
Q4	D-2
Q5	D-2
Q6	A-2
Q7	A-2
Q8	A-2
Q9	A-1
Q10	A-2
Q11	D-3
Q12	D-2
Q13	D-2
Q14	D-2
Q15	D-3
Q16	A-3
Q17	A-2
Q18	A-2
Q19	D-2
Q20	D-2
Q21	C-2
Q22	A-2
Q23	A-2
Q24	A-2
Q25	C-2
Q26	C-2
Q27	D-3
Q28	C-2
Q29	D-2
Q30	D-3
Q31	D-2
Q32	D-3
Q33	C-2
Q34	A-2
Q35	A-2
Q36	A-3
Q37	A-2
Q38	A-2
Q39	A-3
Q40	D-2
Q41	D-2
Q42	D-1
Q43	D-3
Q44	A-3
Q45	D-2
Q46	C-3
Q47	D-2
Q48	C-3
Q49	C-1
Q50	C-1
Q51	D-1
Q52	D-1
Q53	D-1
Q54	B-2
Q55	B-2
Q56	A-2
Q57	B-1
Q58	B-1
Q59	B-1
Q60	A-2
Q61	B-2
Q62	A-2
Q63	C-3
Q64	A-2
Q65	C-2
Q66	C-2
Q67	C-3
Q68	A-2
Q69	B-2
Q70	C-3
Q71	A-2
Q72	B-2
Q73	D-3
Q74	C-3
Q75	A-2
Q76	B-3
Q77	A-2
Q78	B-2
Q79	B-2
Q80	B-3
Q81	B-2
Q82	A-1
Q83	A-1
Q84	B-2
Q85	B-2
RV1	A-2
RV2	A-2
RV3	A-3
RV5	D-3
RV6	B-2
RV7	B-2
RV8	A-2
RV9	A-2
RV10	A-2
RV11	A-2
RV12	C-3
RV13	D-1
RV14	D-1
RV15	D-2
TP1	A-2
TP2	A-1
TP3	A-1
TP4	A-1
TP5	A-1
TP6	D-3
TP7	A-3
TP8	A-2
TP9	D-3
TP10	C-2
TP11	A-3
TP12	A-2
TP13	D-3
TP14	A-3
TP15	D-1
TP16	A-2
TP17	B-2



1-642-391-11 COMPONENT SIDE



1-642-391-11 SOLDERING SIDE

PR-158/158P (1-642-391-11)

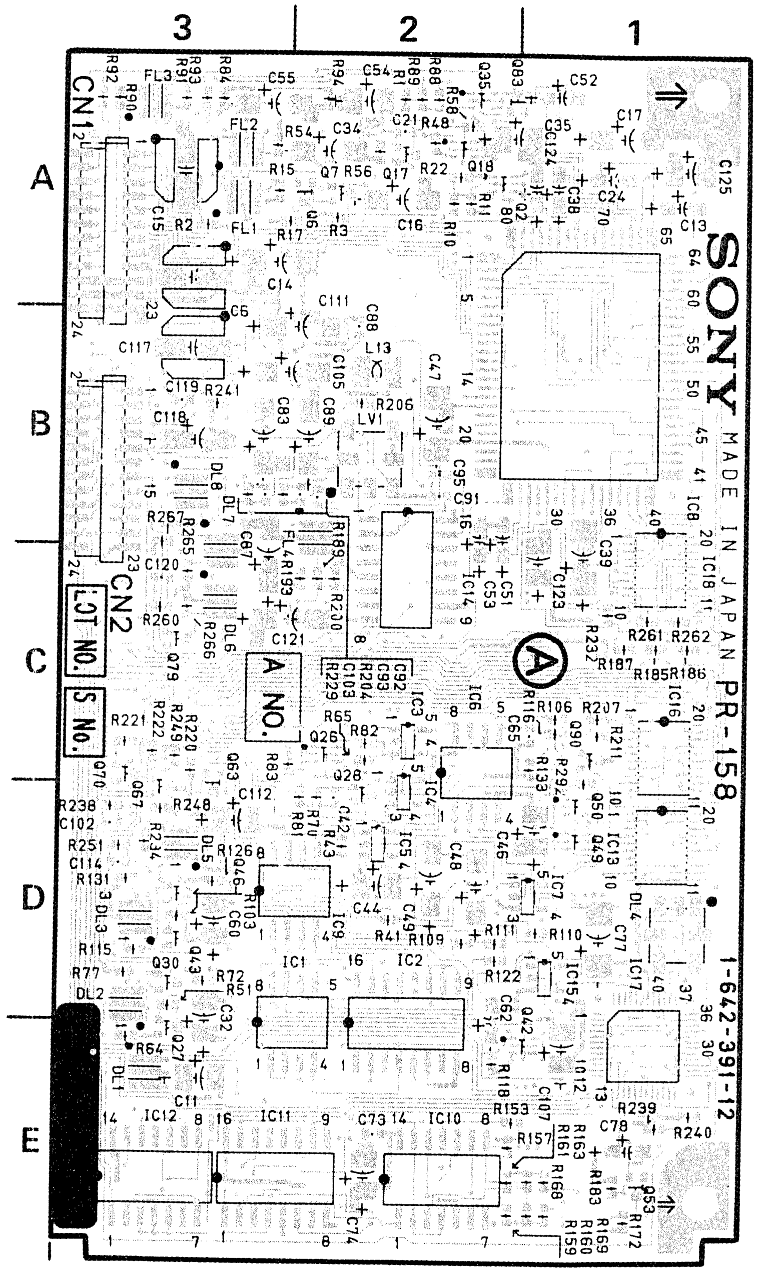
CN1	A-3
CN2	B-3
DL1	D-3
DL2	D-3
DL3	D-3
DL4	D-1
DL5	C-3
DL6	B-2
DL7	B-2
DL8	B-2
D1	D-2
D2	D-2
E1	A-3
FL1	A-2
FL2	A-2
FL3	A-3
FL4	B-2
IC1	D-2
IC2	D-2
IC3	C-2
IC4	C-2
IC5	C-2
IC6	C-2
IC7	C-1
IC8	B-1
IC9	C-2
IC10	D-2
IC11	D-2
IC12	D-3
IC13	C-1
IC14	B-2
IC15	D-1
IC16	C-1
IC17	D-1
IC18	B-1
LV1	A-2
Q1	A-2
Q2	A-2
Q3	A-1
Q4	D-2
Q5	D-2
Q6	A-2
Q7	A-2
Q8	A-2
Q9	A-1
Q10	A-2
Q11	D-3
Q12	D-2
Q13	D-2
Q14	D-2
Q15	D-3
Q16	A-3
Q17	A-2
Q18	A-2
Q19	D-2
Q20	D-2
Q21	C-2
Q22	A-2
Q23	A-2
Q24	A-2
Q25	C-2
Q26	C-2
Q27	D-3
Q28	C-2
Q29	D-2
Q30	D-3
Q31	D-2
Q32	D-3
Q33	C-2
Q34	A-2
Q35	A-2
Q36	A-3
Q37	A-2
Q38	A-2
Q39	A-3
Q40	D-2
Q41	D-2
Q42	D-1
Q43	D-3
Q44	A-3
Q45	D-2
Q46	C-3
Q47	D-2
Q48	C-3
Q49	C-1
Q50	C-1
Q51	D-1
Q52	D-1
Q53	D-1
Q54	B-2
Q55	B-2
Q56	A-2
Q57	B-1
Q58	B-1
Q59	B-1
Q60	A-2
Q61	B-2
Q62	A-2
Q63	C-3
Q64	A-2
Q65	C-2
Q66	C-2
Q67	C-3
Q68	A-2
Q69	B-2
Q70	C-3
Q71	A-2
Q72	B-2
Q73	D-3
Q74	C-3
Q75	A-2
Q76	B-3
Q77	A-2
Q78	B-2
Q79	B-2
Q80	B-3
Q81	B-2
Q82	A-1
Q83	A-1
Q84	B-2
Q85	B-2
RV1	A-2
RV2	A-2
RV3	A-3
RV5	D-3
RV6	B-2
RV7	B-2
RV8	A-2
RV9	A-2
RV10	A-2
RV11	A-2
RV12	C-3
RV13	D-1
RV14	D-1
RV15	D-2
TP1	A-2
TP2	A-1
TP3	A-1
TP4	A-1
TP5	A-1
TP6	D-3
TP7	A-3
TP8	A-2
TP9	D-3
TP10	C-2
TP11	A-3
TP12	A-2
TP13	D-3
TP14	A-3
TP15	D-1
TP16	A-2
TP17	B-2

PR-158/158P BOARD

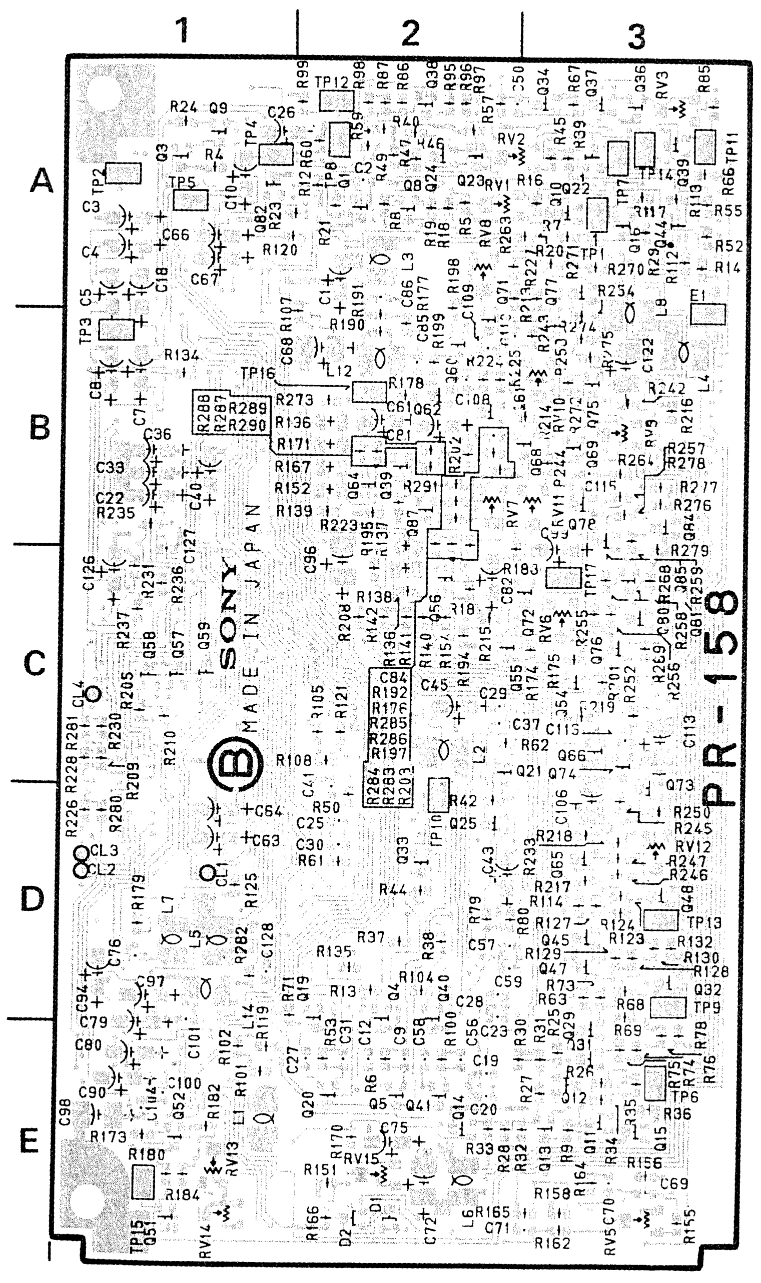
```
Serial No. 30281-30480 DXC-930 (J)
           10271-10570 DXC-930 (UC)
           10481-10980 DXC-930P (EK)
           10051-10250 DXC-960MD (UC)
           10171-10320 XC-009 (J)
           10061-10110 XC-009P (EK)
```

PR-158/158P (1-642-391-12)

CN1	A-3
CN2	B-3
DL1	E-3
DL2	D-3
DL3	D-3
DL4	D-1
DL5	D-3
DL6	C-3
DL7	C-3
DL8	B-3
D1	D-2
D2	D-2
E1	A-3
FL1	A-3
FL2	A-3
FL3	A-3
FL4	B-2
IC1	D-2
IC2	D-2
IC3	C-2
IC4	C-2
IC5	D-2
IC6	C-2
IC7	D-1
IC8	B-1
IC9	C-2
IC10	E-2
IC11	E-3
IC12	E-3
IC13	D-1
IC14	C-2
IC15	D-1
IC16	C-1
IC17	D-1
IC18	C-1
LV1	B-2
Q1	A-2
Q2	A-2
Q3	A-1
Q4	D-2
Q5	D-2
Q6	A-2
Q7	A-2
Q8	A-2
Q9	A-1
Q10	A-2
Q11	D-3
Q12	D-2
Q13	D-2
Q14	D-2
Q15	D-3
Q16	A-3
Q17	A-2
Q18	A-2
Q19	D-2
Q20	D-2
Q21	C-2
Q22	A-2
Q23	A-2
Q24	A-2
Q25	C-2
Q26	C-2
Q27	D-3
Q28	C-2
Q29	D-2
Q30	D-3
Q31	D-2
Q32	D-3
Q33	C-2
Q34	A-2
Q35	A-2
Q36	A-3
Q37	A-2
Q38	A-2
Q39	A-3
Q40	D-2
Q41	D-2
Q42	D-1
Q43	D-3
Q44	A-3
Q45	D-2
Q46	C-3
Q47	D-2
Q48	C-3
Q49	C-1
Q50	C-1
Q51	D-1
Q52	D-1
Q53	D-1
Q54	B-2
Q55	B-2
Q56	C-2
Q57	B-1
Q58	B-1
Q59	B-1
Q60	A-2
Q61	B-2
Q62	A-2
Q63	C-3
Q64	B-2
Q65	C-2
Q66	C-2
Q67	C-3
Q68	A-2
Q69	B-2
Q70	C-3
Q71	A-2
Q72	B-2
Q73	D-3
Q74	C-3
Q75	A-2
Q76	B-3
Q77	A-2
Q78	B-2
Q79	B-2
Q80	B-3
Q81	B-2
Q82	A-1
Q83	A-1
Q84	B-2
Q85	B-2
Q87	B-2
Q89	B-2
Q90	C-1
RV1	A-2
RV2	A-2
RV3	A-3
RV5	D-3
RV6	B-2
RV7	B-2
RV8	A-2
RV9	A-2
RV10	B-3
RV11	A-2
RV12	C-3
RV13	D-1
RV14	D-1
RV15	D-2
TP1	A-2
TP2	A-1
TP3	A-1
TP4	A-1
TP5	A-1
TP6	D-3
TP7	A-3
TP8	A-2
TP9	D-3
TP10	C-2
TP11	A-3
TP12	A-2
TP13	D-3
TP14	A-3
TP15	D-1
TP16	A-2
TP17	B-2



1-642-391-12 COMPONENT SIDE



1-642-391-12 SOLDERING SIDE

PR-158/158P (1-642-391-12)

CN1	A-3
CN2	B-3
DL1	E-3
DL2	D-3
DL3	D-3
DL4	D-1
DL5	D-3
DL6	C-3
DL7	C-3
DL8	B-3
D1	D-2
D2	D-2
E1	A-3
FL1	A-3
FL2	A-3
FL3	A-3
FL4	B-2
IC1	D-2
IC2	D-2
IC3	C-2
IC4	C-2
IC5	D-2
IC6	C-2
IC7	D-1
IC8	B-1
IC9	C-2
IC10	E-2
IC11	E-3
IC12	E-3
IC13	D-1
IC14	C-2
IC15	D-1
IC16	C-1
IC17	D-1
IC18	C-1
LV1	B-2
Q1	A-2
Q2	A-2
Q3	A-1
Q4	D-2
Q5	D-2
Q6	A-2
Q7	A-2
Q8	A-2
Q9	A-1
Q10	A-2
Q11	D-3
Q12	D-2
Q13	D-2
Q14	D-2
Q15	D-3
Q16	A-3
Q17	A-2
Q18	A-2
Q19	D-2
Q20	D-2
Q21	C-2
Q22	A-2
Q23	A-2
Q24	A-2
Q25	C-2
Q26	C-2
Q27	D-3
Q28	C-2
Q29	D-2
Q30	D-3
Q31	D-2
Q32	D-3
Q33	C-2
Q34	A-2
Q35	A-2
Q36	A-3
Q37	A-2
Q38	A-2
Q39	A-3
Q40	D-2
Q41	D-2
Q42	D-1
Q43	D-3
Q44	A-3
Q45	D-2
Q46	C-3
Q47	D-2
Q48	C-3
Q49	C-1
Q50	C-1
Q51	D-1
Q52	D-1
Q53	D-1
Q54	B-2
Q55	B-2
Q56	C-2
Q57	B-1
Q58	B-1
Q59	B-1
Q60	A-2
Q61	B-2
Q62	A-2
Q63	C-3
Q64	B-2
Q65	C-2
Q66	C-2
Q67	C-3
Q68	A-2
Q69	B-2
Q70	C-3
Q71	A-2
Q72	B-2
Q73	D-3
Q74	C-3
Q75	A-2
Q76	B-3
Q77	A-2
Q78	B-2
Q79	B-2
Q80	B-3
Q81	B-2
Q82	A-1
Q83	A-1
Q84	B-2
Q85	B-2
Q87	B-2
Q89	B-2
Q90	C-1
RV1	A-2
RV2	A-2
RV3	A-3
RV5	D-3
RV6	B-2
RV7	B-2
RV8	A-2
RV9	A-2
RV10	B-3
RV11	A-2
RV12	C-3
RV13	D-1
RV14	D-1
RV15	D-2
TP1	A-2
TP2	A-1
TP3	A-1
TP4	A-1
TP5	A-1
TP6	D-3
TP7	A-3
TP8	A-2
TP9	D-3
TP10	C-2
TP11	A-3
TP12	A-2
TP13	D-3
TP14	A-3
TP15	D-1
TP16	A-2
TP17	B-2

PR-158/158P BOARD

Serial No.	
30481-	DXC-930 (J)
10571-	DXC-930 (UC)
10981-	DXC-930P (EK)
50001-	DXC-930P (UC)
10251-	DXC-960MD (UC)
10321-	XC-009 (J)
10111-	XC-009P (EK)

PR-158/158P (1-642-391-13)

CN1	A-3
CN2	B-3
DL1	E-3
DL2	D-3
DL3	D-3
DL4	D-1
DL5	D-3
DL6	C-3
DL7	C-3
DL8	B-3
D1	D-2
D2	D-2
E1	A-3
FL1	A-3
FL2	A-3
FL3	A-3
FL4	B-2
IC1	D-2
IC2	D-2
IC3	C-2
IC4	C-2
IC5	D-2
IC6	C-2
IC7	D-1
IC8	B-1
IC9	C-2
IC10	E-2
IC11	E-3
IC12	E-3
IC13	D-1
IC14	C-2
IC15	D-1
IC16	C-1
IC17	D-1
IC18	C-1
LV1	B-2
Q1	A-2
Q2	A-2
Q3	A-1
Q4	D-2
Q5	D-2
Q6	A-2
Q7	A-2
Q8	A-2
Q9	A-1
Q10	A-2
Q11	D-3
Q12	D-2
Q13	D-2
Q14	D-2
Q15	D-3
Q16	A-3
Q17	A-2
Q18	A-2
Q19	D-2
Q20	D-2
Q21	C-2
Q22	A-2
Q23	A-2
Q24	A-2
Q25	C-2
Q26	C-2
Q27	D-3
Q28	C-2
Q29	D-2
Q30	D-3
Q31	D-2
Q32	D-3
Q33	C-2
Q34	A-2
Q35	A-2
Q36	A-3
Q37	A-2
Q38	A-2
Q39	A-3
Q40	D-2
Q41	D-2
Q42	D-1
Q43	D-3
Q44	A-3
Q45	D-2
Q46	C-3
Q47	D-2
Q48	C-3
Q49	C-1
Q50	C-1
Q51	D-1
Q52	D-1
Q53	D-1
Q54	B-2
Q55	B-2
Q56	C-2
Q57	B-1
Q58	B-1
Q59	B-1
Q60	A-2
Q61	B-2
Q62	A-2
Q63	C-3
Q64	B-2
Q65	C-2
Q66	C-2
Q67	C-3
Q68	A-2
Q69	B-2
Q70	C-3
Q71	A-2
Q72	B-2
Q73	D-3
Q74	C-3
Q75	A-2
Q76	B-3
Q77	A-2
Q78	B-2
Q79	B-2
Q80	B-3
Q81	B-2
Q82	A-1
Q83	A-1
Q84	B-2
Q85	B-2
Q87	B-2
Q89	B-2
Q90	C-1
RV1	A-2
RV2	A-2
RV3	A-3
RV5	D-3
RV6	B-2
RV7	B-2
RV8	A-2
RV9	A-2
RV10	B-3
RV11	A-2
RV12	C-3
RV13	D-1
RV14	D-1
RV15	D-2
TP1	A-2
TP2	A-1
TP3	A-1
TP4	A-1
TP5	A-1
TP6	D-3
TP7	A-3
TP8	A-2
TP9	D-3
TP10	C-2
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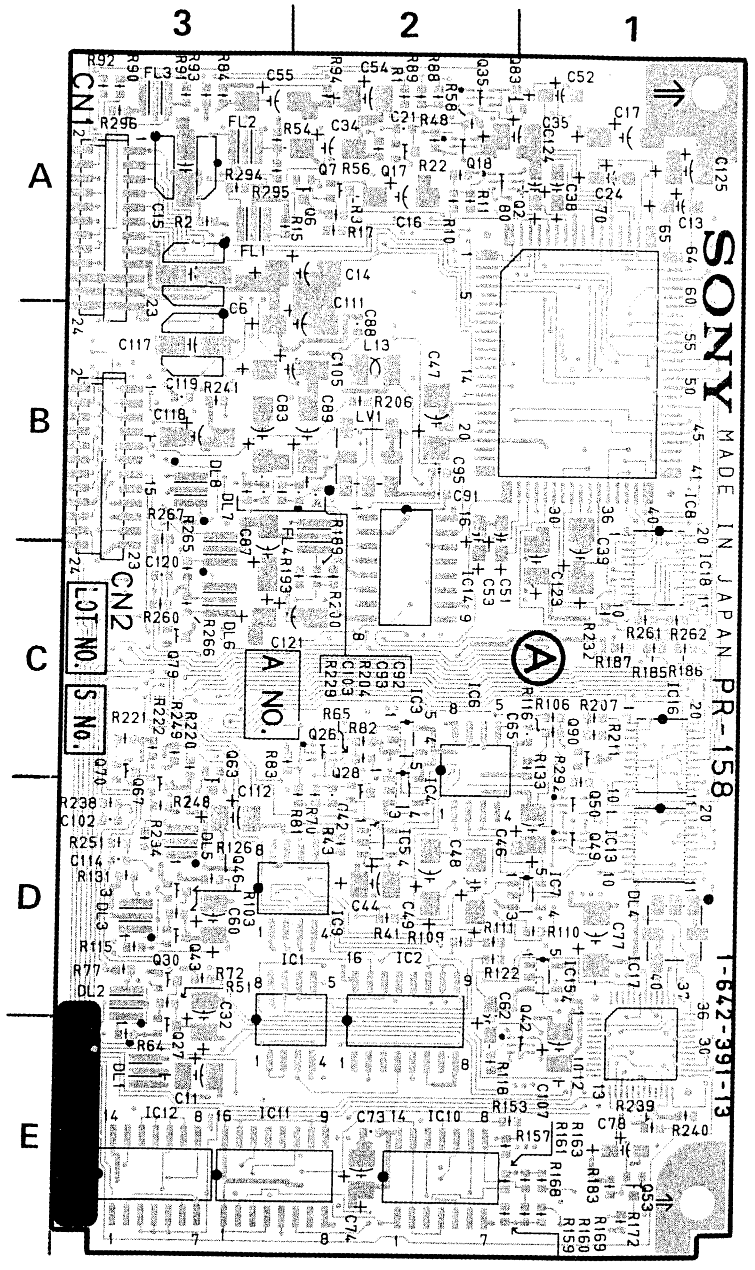
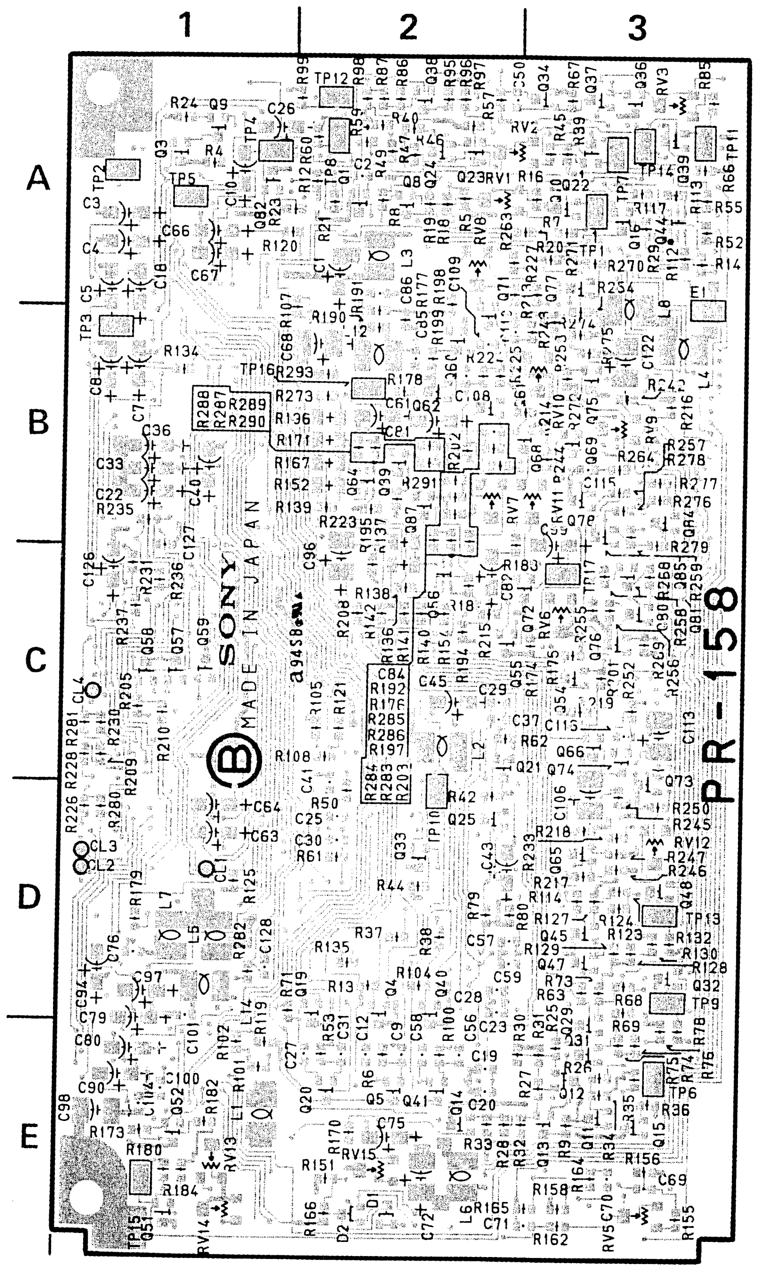
TP14	A-3
TP15	D-1
TP16	A-2
TP17	B-2



1-642-391-13 COMPONENT SIDE



1-642-391-13 SOLDERING SIDE

PR-158/158P (1-642-391-13)

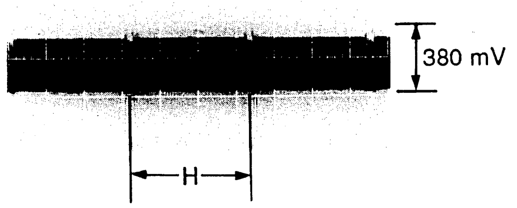
CN1	A-3
CN2	B-3
DL1	E-3
DL2	D-3
DL3	D-3
DL4	D-1
DL5	D-3
DL6	C-3
DL7	C-3
DL8	B-3
D1	D-2
D2	D-2
E1	A-3
FL1	A-3
FL2	A-3
FL3	A-3
FL4	B-2
IC1	D-2
IC2	D-2
IC3	C-2
IC4	C-2
IC5	D-2
IC6	C-2
IC7	D-1
IC8	B-1
IC9	C-2
IC10	E-2
IC11	E-3
IC12	E-3
IC13	D-1
IC14	C-2
IC15	D-1
IC16	C-1
IC17	D-1
IC18	C-1
LV1	B-2
Q1	A-2
Q2	A-2
Q3	A-1
Q4	D-2
Q5	D-2
Q6	A-2
Q7	A-2
Q8	A-2
Q9	A-1
Q10	A-2
Q11	D-3
Q12	D-2
Q13	D-2
Q14	D-2
Q15	D-3
Q16	A-3
Q17	A-2
Q18	A-2
Q19	D-2
Q20	D-2
Q21	C-2
Q22	A-2
Q23	A-2
Q24	A-2
Q25	C-2
Q26	C-2
Q27	D-3
Q28	C-2
Q29	D-2
Q30	D-3
Q31	D-2
Q32	D-3
Q33	C-2
Q34	A-2
Q35	A-2
Q36	A-3
Q37	A-2
Q38	A-2
Q39	A-3
Q40	D-2
Q41	D-2
Q42	D-1
Q43	D-3
Q44	A-3
Q45	D-2
Q46	C-3
Q47	D-2
Q48	C-3
Q49	C-1
Q50	C-1
Q51	D-1
Q52	D-1
Q53	D-1
Q54	B-2
Q55	B-2
Q56	C-2
Q57	B-1
Q58	B-1
Q59	B-1
Q60	A-2
Q61	B-2
Q62	A-2
Q63	C-3
Q64	B-2
Q65	C-2
Q66	C-2
Q67	C-3
Q68	A-2
Q69	B-2
Q70	C-3
Q71	A-2
Q72	B-2
Q73	D-3
Q74	C-3
Q75	A-2
Q76	B-3
Q77	A-2
Q78	B-2
Q79	B-2
Q80	B-3
Q81	B-2
Q82	A-1
Q83	A-1
Q84	B-2
Q85	B-2
Q87	B-2
Q89	B-2
Q90	C-1
RV1	A-2
RV2	A-2
RV3	A-3
RV5	D-3
RV6	B-2
RV7	B-2
RV8	A-2
RV9	A-2
RV10	B-3
RV11	A-2
RV12	C-3
RV13	D-1
RV14	D-1
RV15	D-2
TP1	A-2
TP2	A-1
TP3	A-1
TP4	A-1
TP5	A-1
TP6	D-3
TP7	A-3
TP8	A-2
TP9	D-3
TP10	C-2
TP11	A-3
TP12	A-2
TP13	D-3
TP14	A-3
TP15	D-1
TP16	A-2
TP17	B-2

PR-158/158P BOARD

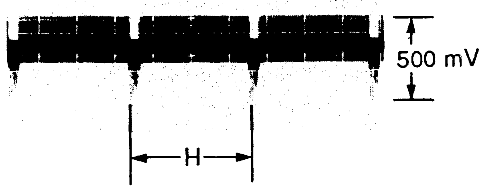
NOTE:

- All voltage are DC, measured with a digital voltmeter.
- DC 電圧はデジタル電圧計による値
- DISPLAY/BARS bottom →"BARS"
- GAIN :00DB
- C. TEMP :3200K
- WHT. BAL :AUTO
- R GAIN :+00
- B GAIN :+00
- CCD IRIS :OFF
- SHUTTER :OFF

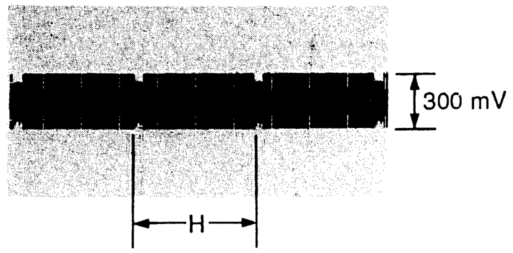
PR, CN1-18 R PA (LENS: CLOSE)



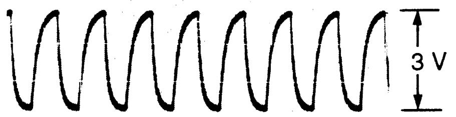
PR, CN1-16 G PA (LENS: CLOSE)



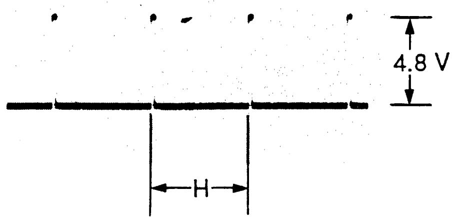
PR, CN1-14 B PA (LENS: CLOSE)



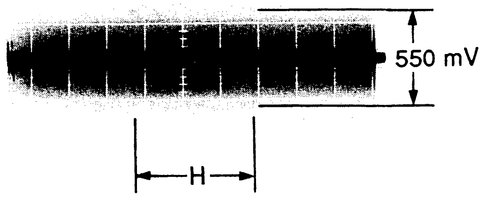
PR, CN2-20 SC



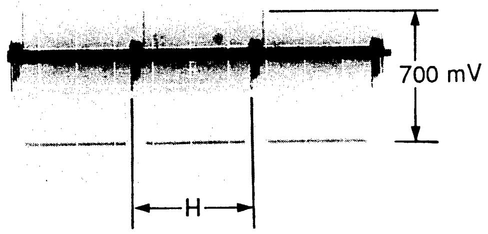
PR, CN2-16 BF



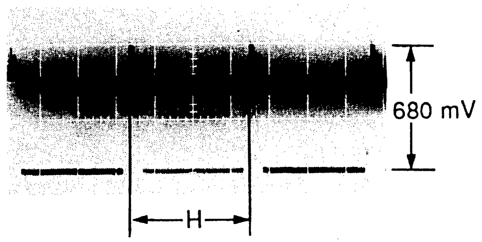
PR, CN2-14 L ALT



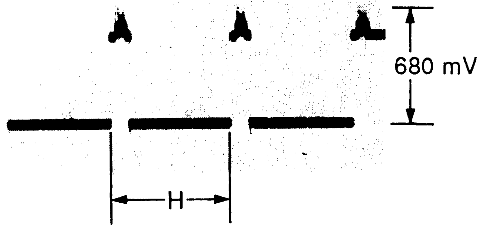
PR, TP4 R VIDEO (LENS: CLOSE)



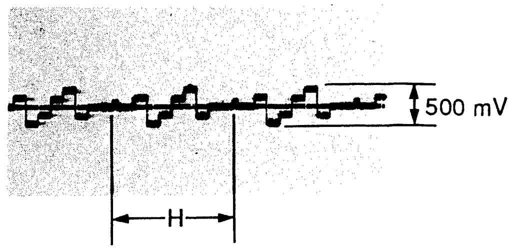
PR, TP8 G VIDEO (LENS: CLOSE)



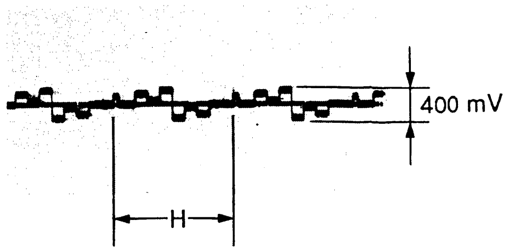
PR, TP12 B VIDEO (LENS: CLOSE)



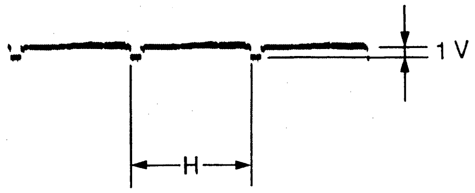
PR, TP16 R-Y



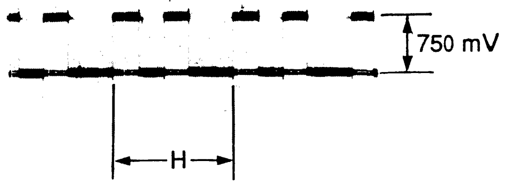
PR, TP17 B-Y



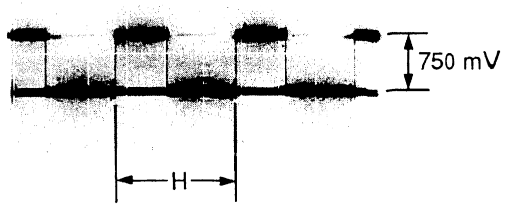
PR, CN1-9



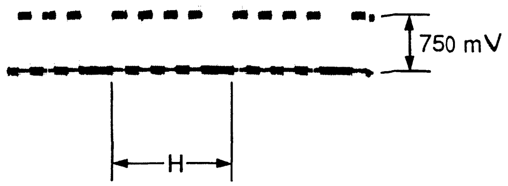
PR, TP6 R PR



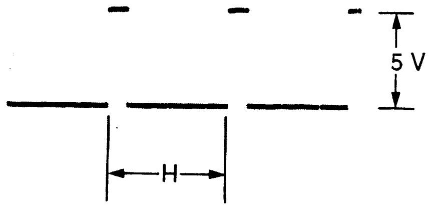
PR, TP9 G PR



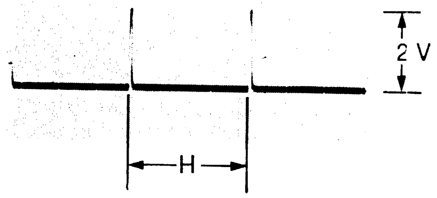
PR, TP13 B PR



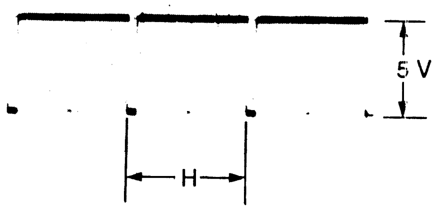
PR, CN1-2 CLP4



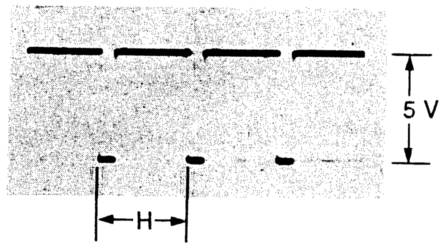
PR, CN1-13 CLP3



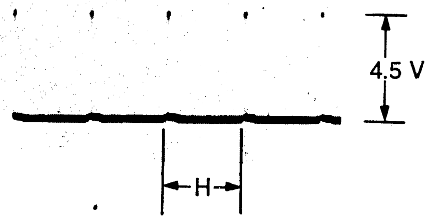
PR, CN2-24 SYNC



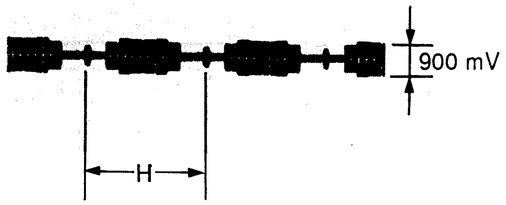
PR, CN2-22 BLKG



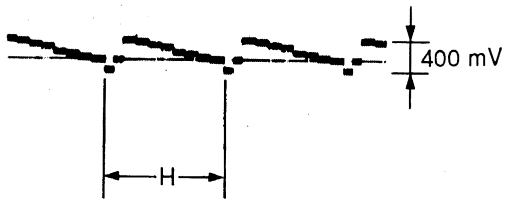
PR, CN1-11 CLP



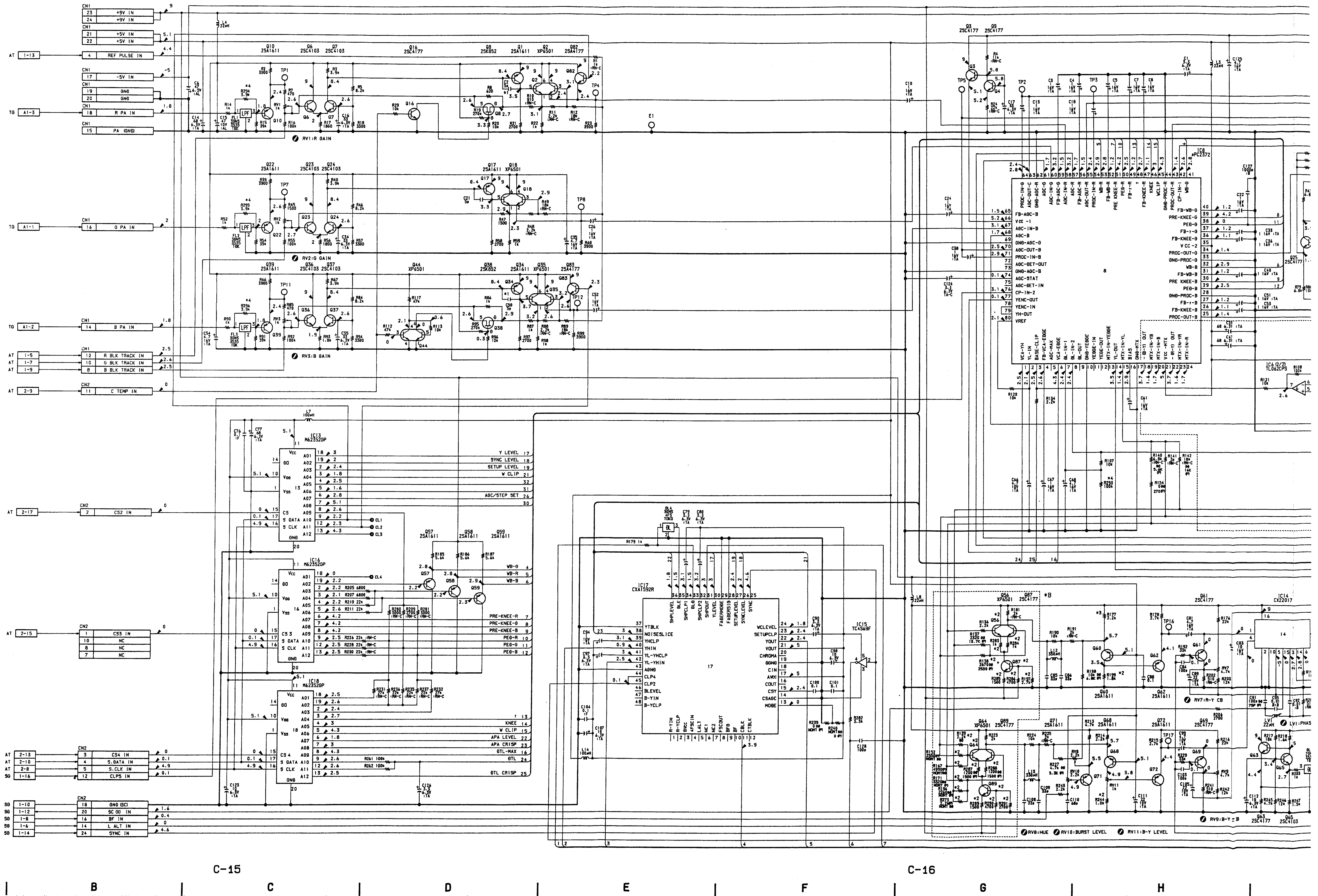
PR, CN2-13 CHROMA

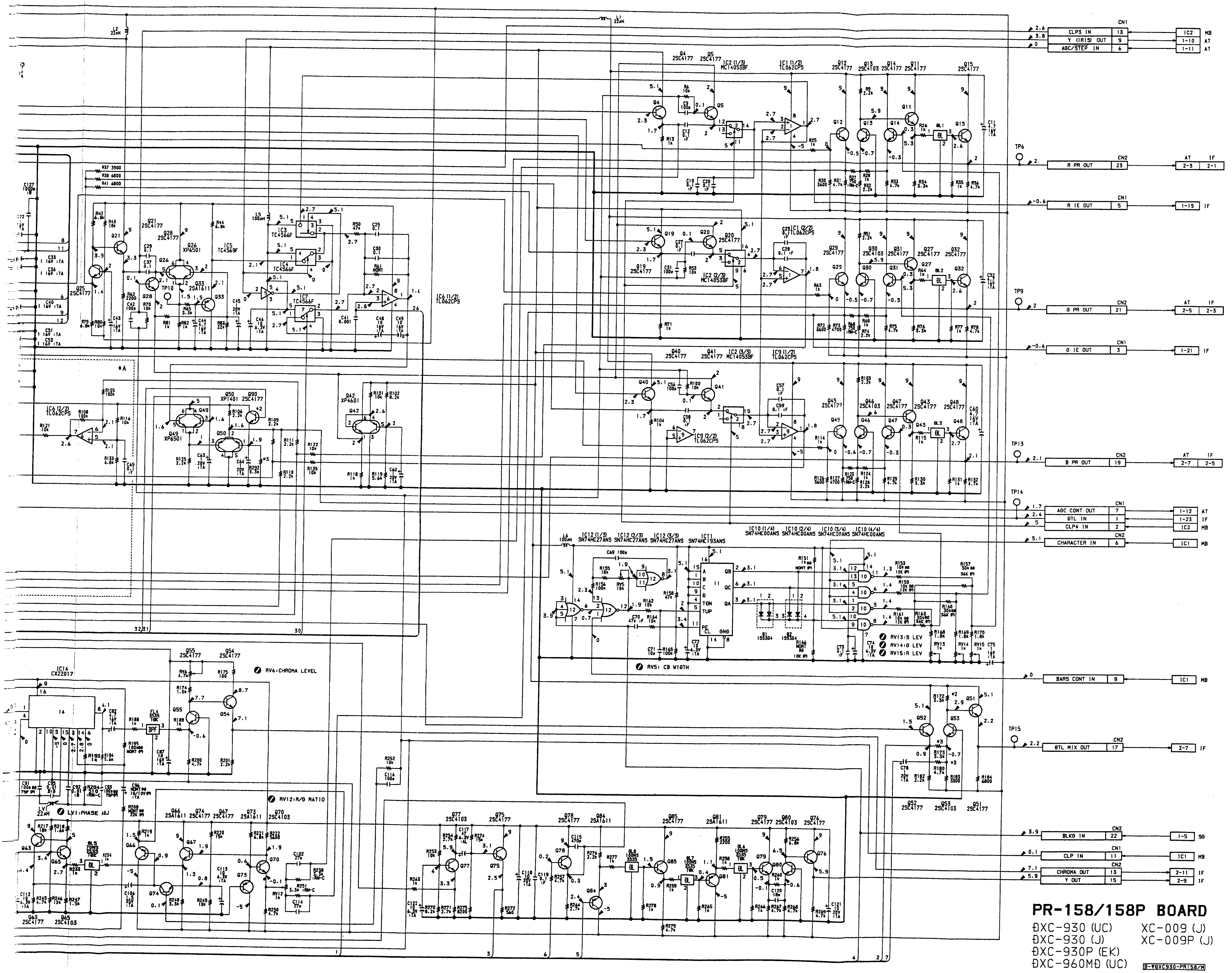


PR, CN2-15 Y



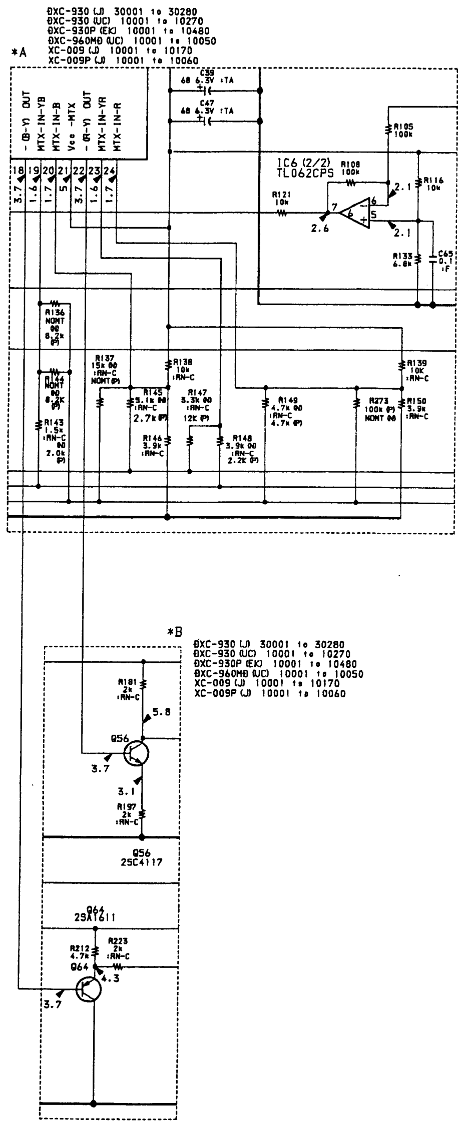
PR-158/158P BOARD


CN1
+9V IN
+5V IN
REF PULSE IN
-5V IN
GND
R PA IN
PA (GND)
G PA IN
B PA IN
R BLK TRACK IN
G BLK TRACK IN
B BLK TRACK IN
C TEMP IN
CN2
CS2 IN
CS3 IN
NC
CS4 IN
S.DATA IN
S.CLK IN
CLPS IN
GND (SC)
SC 00 IN
BF IN
ALT IN
SYNC IN
RV1:R GAIN
RV2:G GAIN
RV3:B GAIN
IC13 M62352GP
IC16 M62352GP
IC18 M62352GP
Y LEVEL
SYNC LEVEL
SETUP LEVEL
W CLIP
AGC/STEP SET
WB-G
WB-R
WB-B
PRE-KNEE-R
PRE-KNEE-G
PRE-KNEE-B
PED-R
PED-G
PED-B
KNEE
W CLIP
APA LEVEL
APA CRISP
DTL-MAX
DTL
DTL CRISP
IC17 CXA1592R
IC15 TC4S69F
IC8 μPC2372
IC6 (2/2) TL062CPS
IC14 CX22017
RV7:R-Y CB
RV8:HUE
RV9:B-Y CB
RV10:BURST LEVEL
RV11:B-Y LEVEL
LV1:PHASE
A
B
C
D
E
F
G
H


CLP3 IN
Y (IRIS) OUT
AGC/STEP IN
R PR OUT
R IE OUT
G PR OUT
G IE OUT
B PR OUT
AGC CONT OUT
BTL IN
CLP4 IN
CHARACTER IN
BARS CONT IN
BTL MIX OUT
BLKG IN
CLP IN
CHROMA OUT
Y OUT
CN1
CN2
TP6
TP9
TP13
TP14
TP15
IC14 CX22017
RV6: CHROMA LEVEL
RV5: CB WIDTH
RV12: R/D RATIO
LV1: PHASE ADJ
RV13: B LEV
RV14: G LEV
RV15: R LEV

* NOTE

MARK	CHANGE INFO.	SERIAL NO.
*1	C2: 3P → 5P C50: 3P → 5P	ÐXC-930 (J) 30181 and higher ÐXC-930 (UC) 10071 and higher ÐXC-930P (EK) 10131 and higher ÐXC-960MÐ (UC) 10001 and higher XC-009 (J) 10071 and higher XC-009P (J) 10001 and higher
*2	AÐÐ: Q87, Q89, Q90, R196 R283, R284, R285 R286, R287, R288 R289, R290, R291 R136: (N) 2.2K AÐÐEÐ (P) 8.2K → 2.2K R138: (N) 10K → 2670 (P) 10K → 2550 R139: (N) 10K → 2.2K (P) 10K → ÐELETEÐ R197: 2K → 2.7K R172: 2.7K → 3.3K R199: 4700 → 1.8K R212 (4.7k) ÐELETEÐ R244: (N) 3.3K → 1K (P) 2.2K → 1K R273 (P): 100K → 2.2K Q56: 2SC4177 → XP6501 Q64: 2SA1611 → XP6501	ÐXC-930 (J) 30281 and higher ÐXC-930 (UC) 10271 and higher ÐXC-930P (EK) 10481 and higher ÐXC-960MÐ (UC) 10051 and higher XC-009 (J) 10171 and higher XC-009P (J) 10061 and higher
*3	R173: 5.6K → 3.3K R177: 4700 → 2.2K R180: 2.2K → 4.7K R292 AÐÐEÐ	ÐXC-930 (J) 30331 and higher ÐXC-930 (UC) 10321 and higher ÐXC-930P (EK) 10581 and higher ÐXC-960MÐ (UC) 10151 and higher XC-009 (J) 10171 and higher XC-009P (J) 10061 and higher
*4	AÐÐ: R293, R294, R295 R296	ÐXC-930 (J) 30481 and higher ÐXC-930 (UC) 10571 and higher ÐXC-930P (EK) 10981 and higher ÐXC-960MÐ (UC) 10251 and higher XC-009 (J) 10271 and higher XC-009P (J) 10111 and higher


*A
ÐXC-930 (J) 30001 to 30280
ÐXC-930 (UC) 10001 to 10270
ÐXC-930P (EK) 10001 to 10480
ÐXC-960MÐ (UC) 10001 to 10050
XC-009 (J) 10001 to 10170
XC-009P (J) 10001 to 10060
IC6 (2/2) TL062CPS
*B
ÐXC-930 (J) 30001 to 30280
ÐXC-930 (UC) 10001 to 10270
ÐXC-930P (EK) 10001 to 10480
ÐXC-960MÐ (UC) 10001 to 10050
XC-009 (J) 10001 to 10170
XC-009P (J) 10001 to 10060
Q56 2SC4177
Q64 2SA1611

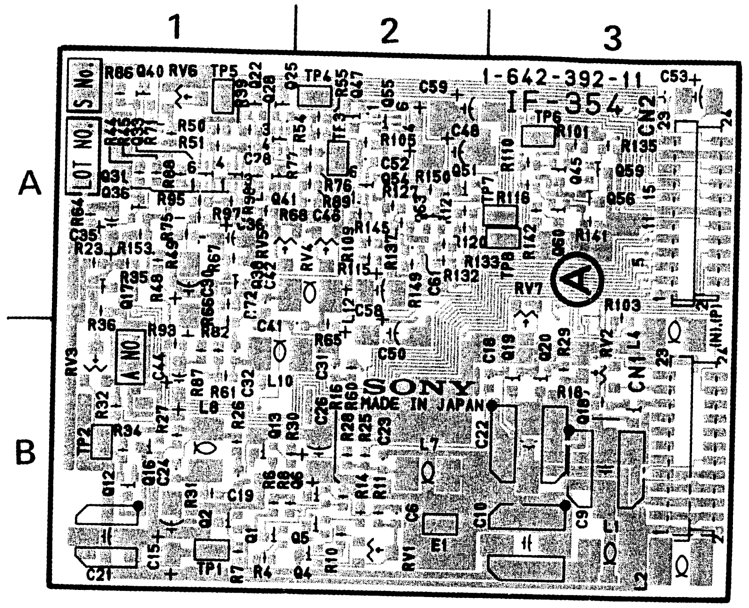
PR-158/158P BOARD

ÐXC-930 (UC)
ÐXC-930 (J)
ÐXC-930P (EK)
ÐXC-960MÐ (UC)
XC-009 (J)
XC-009P (J)

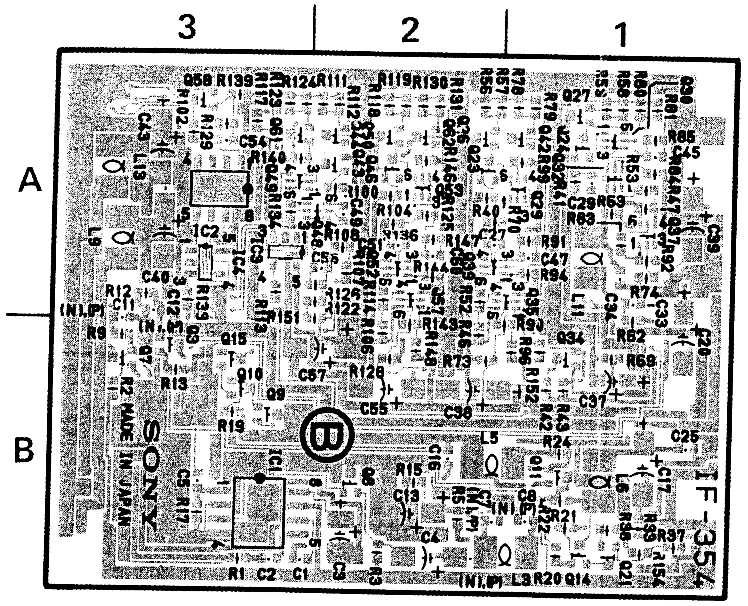
B-¥ÐXC930-PR158/M

IF-354/354P BOARD

Serial No. 30001-30280 DXC-930 (J)
10001-10270 DXC-930 (UC)
10001-10480 DXC-930P (EK)
10001-10050 DXC-960MD (UC)
10001-10170 XC-009 (J)
10001-10060 XC-009P (EK)


1
2
3
A
B
1-642-392-11
IF-354
CN2
CN1
A
SONY
MADE IN JAPAN
S. No.
LOT NO.
A. NO.

1-642-392-11 COMPONENT SIDE


3
2
1
A
B
B
SONY
MADE IN JAPAN
IF-354

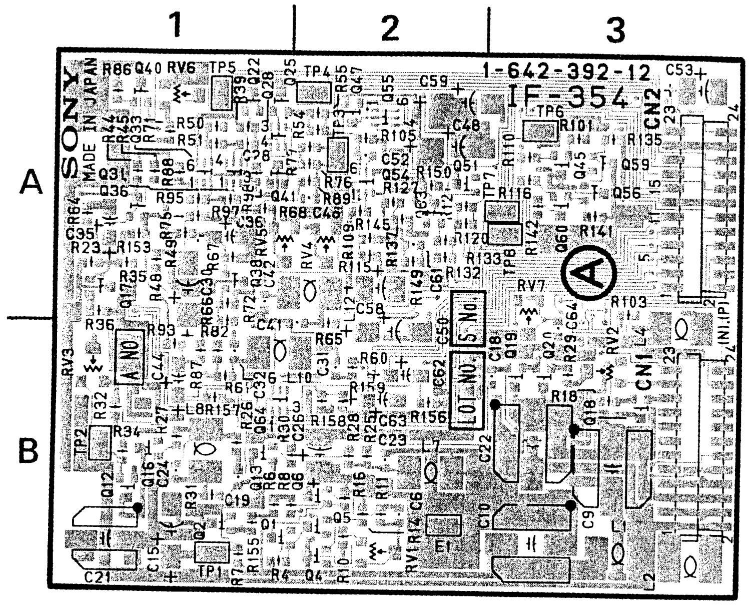
1-642-392-11 SOLDERING SIDE

IF-354/354P (1-642-392-11)

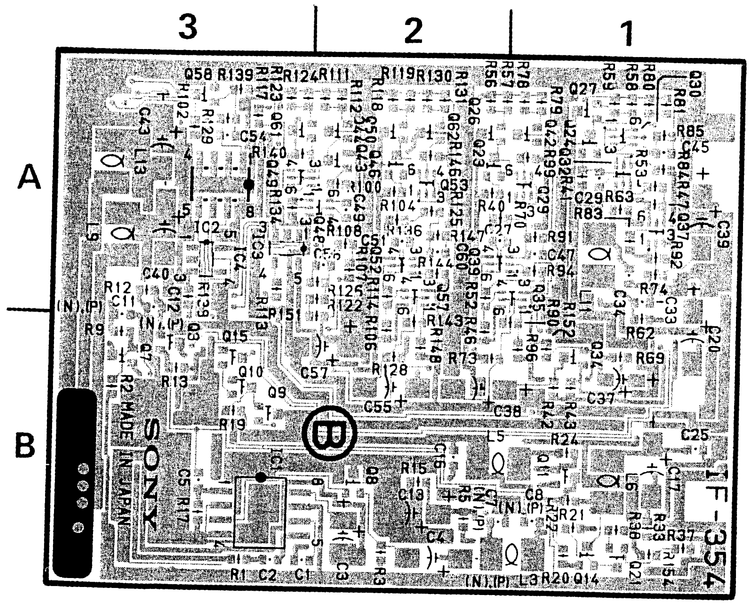
CN1	B-3
CN2	A-3
E1	B-2
IC1	B-2
IC2	A-3
IC3	A-3
IC4	A-3
Q1	B-1
Q2	B-1
Q3	B-3
Q4	B-2
Q5	B-2
Q6	B-2
Q7	B-3
Q8	B-2
Q9	B-3
Q10	B-3
Q11	B-1
Q12	B-1
Q13	B-1
Q14	B-1
Q15	B-3
Q16	B-1
Q17	A-1
Q18	B-3
Q19	B-3
Q20	B-3
Q21	B-1
Q22	A-1
Q23	A-2
Q24	A-1
Q25	A-1
Q26	A-2
Q27	A-1
Q28	A-1
Q29	A-1
Q30	A-1
Q31	A-1
Q32	A-1
Q33	A-1
Q34	B-1
Q35	A-1
Q36	A-1
Q37	A-1
Q38	A-1
Q39	A-2
Q40	A-1
Q41	A-1
Q42	A-1
Q43	A-2
Q44	A-2
Q45	A-3
Q46	A-2
Q47	A-2
Q48	A-2
Q49	A-3
Q50	A-2
Q51	A-2
Q52	A-2
Q53	A-2
Q54	A-2
Q55	A-2
Q56	A-3
Q57	A-2
Q58	A-3
Q59	A-3
Q60	A-3
Q61	A-3
Q62	A-2
Q63	A-2
RV1	B-2
RV2	B-3
RV3	B-1
RV4	A-2
RV5	A-1
RV6	A-1
RV7	A-3
TP1	B-1
TP2	B-1
TP3	A-2
TP4	A-2
TP5	A-1
TP6	A-3
TP7	A-3
TP8	A-3

IF-354/354P BOARD

Serial No. 30281- DXC-930 (J)
10271- DXC-930 (UC)
10481- DXC-930P (EK)
50001- DXC-930P (UC)
10051- DXC-960MD (UC)
10171- XC-009 (J)
10061- XC-009P (EK)


1
2
3
A
B
1-642-392-12
IF-354
CN2
CN1
A
SONY
MADE IN JAPAN
S. No.
LOT NO.
A. NO.

1-642-392-12 COMPONENT SIDE


3
2
1
A
B
B
SONY
MADE IN JAPAN
IF-354

1-642-392-12 SOLDERING SIDE

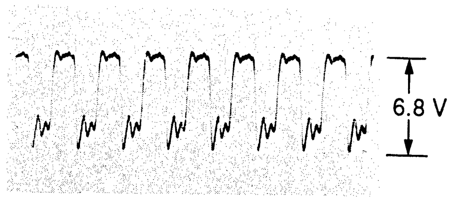
IF-354/354P (1-642-392-12)

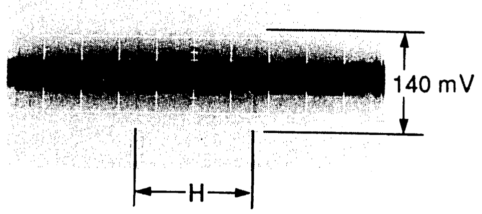
CN1	B-3
CN2	A-3
E1	B-2
IC1	B-3
IC2	A-3
IC3	A-3
IC4	A-3
Q1	B-1
Q2	B-1
Q3	B-3
Q4	B-2
Q5	B-2
Q6	B-2
Q7	B-3
Q8	B-2
Q9	B-3
Q10	B-3
Q11	B-1
Q12	B-1
Q13	B-1
Q14	B-1
Q15	B-3
Q16	B-1
Q17	A-1
Q18	B-3
Q19	B-3
Q20	B-3
Q21	B-1
Q22	A-1
Q23	A-2
Q24	A-1
Q25	A-1
Q26	A-2
Q27	A-1
Q28	A-1
Q29	A-1
Q30	A-1
Q31	A-1
Q32	A-1
Q33	A-1
Q34	B-1
Q35	A-1
Q36	A-1
Q37	A-1
Q38	A-1
Q39	A-2
Q40	A-1
Q41	A-1
Q42	A-1
Q43	A-2
Q44	A-2
Q45	A-3
Q46	A-2
Q47	A-2
Q48	A-2
Q49	A-3
Q50	A-2
Q51	A-2
Q52	A-2
Q53	A-2
Q54	A-2
Q55	A-2
Q56	A-3
Q57	A-2
Q58	A-3
Q59	A-3
Q60	A-3
Q61	A-3
Q62	A-2
Q63	A-2
Q64	B-1
RV1	B-2
RV2	B-3
RV3	B-1
RV4	A-2
RV5	A-1
RV6	A-1
RV7	A-3
TP1	B-1
TP2	B-1
TP3	A-2
TP4	A-2
TP5	A-1
TP6	A-3
TP7	A-3
TP8	A-3

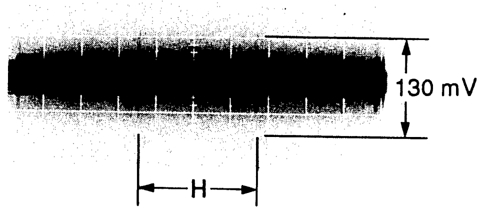
IF-354/354P BOARD

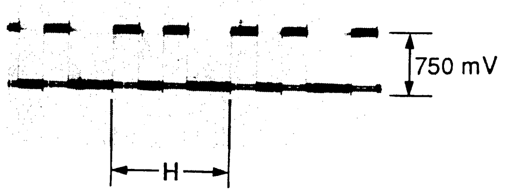
NOTE:

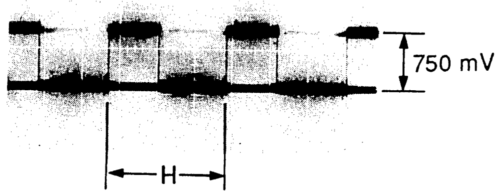
- All voltage are DC, measured with a digital voltmeter.
- DC 電圧はデジタル電圧計による値
- DISPLAY/BARS bottom →"BARS"
- GAIN :00DB
- C. TEMP :3200K
- WHT. BAL :AUTO
- R GAIN :+00
- B GAIN :+00
- CCD IRIS :OFF
- SHUTTER :OFF

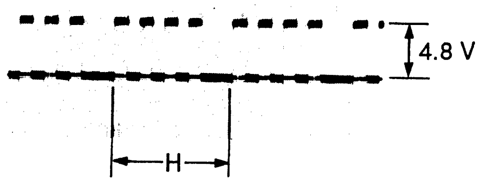

IF, CN1-10 14MHz

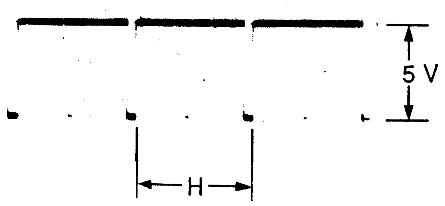

IF, CN1-21 G IE (LENS: CLOSE)

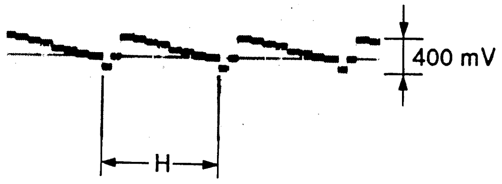

IF, CN1-19 R IE (LENS: CLOSE)

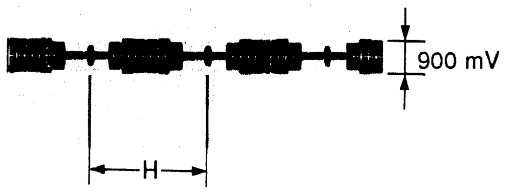

IF, CN2-1 R PR

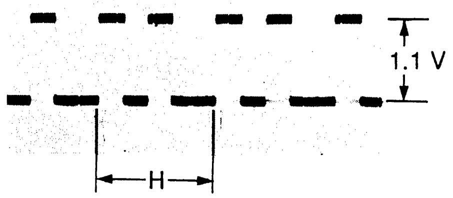

IF, CN2-3 G PR

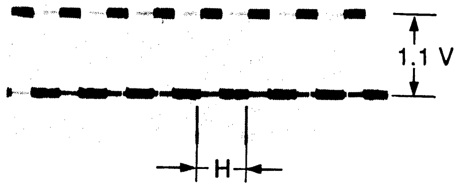

IF, CN2-5 B PR

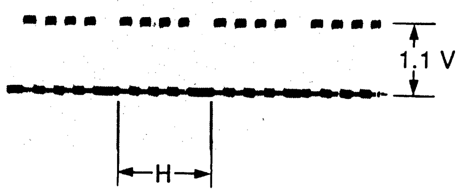

IF, CN2-8 SYNC

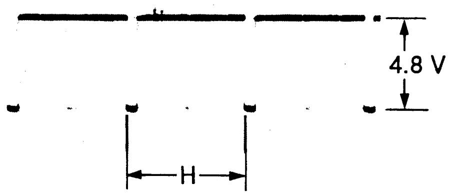

IF, CN2-9 Y

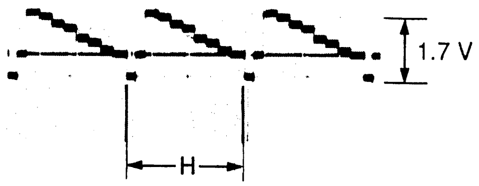

IF, CN2-11 CHROMA

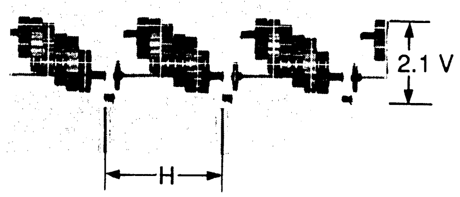

IF, CN2-16 R

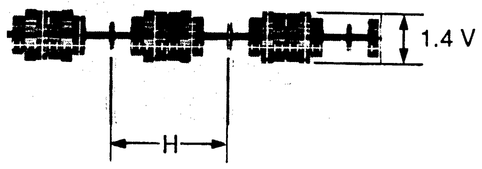

IF, CN2-18 G


IF, CN2-20 B

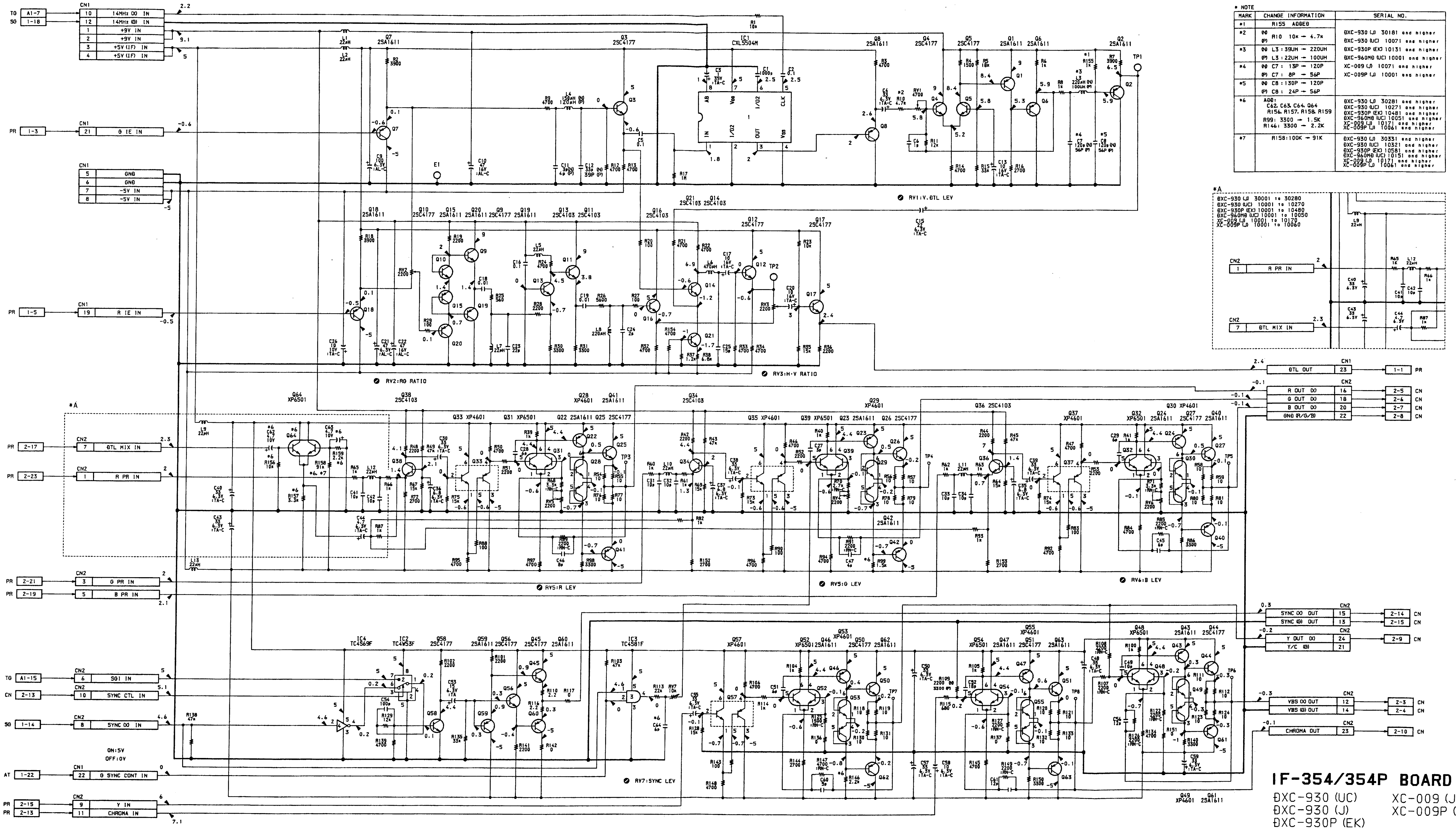

IF, CN2-15 SYNC


IF, CN2-24 Y


IF, CN2-12 VBS


IF, CN2-23 CHROMA

IF-354/354P BOARD



CN1
14MHz (X) IN
+9V IN
+5V (IF) IN
G IE IN
GND
-5V IN
R IE IN
CN2
GTL MIX IN
R PR IN
G PR IN
B PR IN
SGI IN
SYNC CTL IN
SYNC (X) IN
G SYNC CONT IN
Y IN
CHROMA IN
GTL OUT
R OUT (X)
G OUT (X)
B OUT (X)
GND (R/G/B)
SYNC (X) OUT
SYNC (X) OUT
Y OUT (X)
Y/C (X)
VBS (X) OUT
VBS (X) OUT
CHROMA OUT
IC1 CXL5504M
IC2 TC4W53F
IC3 TC4S81F
IC4 TC4S69F
RV1:V.GTL LEV
RV2:RG RATIO
RV3:H-V RATIO
RV5:R LEV
RV5:G LEV
RV6:B LEV
RV7:SYNC LEV
ON:5V
OFF:0V
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
*A
DXC-930 (J) 30001 to 30280
DXC-930 (UC) 10001 to 10270
DXC-930P (EK) 10001 to 10480
DXC-960MD (UC) 10001 to 10050
XC-009 (J) 10001 to 10170
XC-009P (J) 10001 to 10060

* NOTE

MARK	CHANGE INFORMATION	SERIAL NO.
*1	R155 ADDED	DXC-930 (J) 30181 and higher DXC-930 (UC) 10071 and higher DXC-930P (EK) 10131 and higher DXC-960MD (UC) 10001 and higher XC-009 (J) 10071 and higher XC-009P (J) 10001 and higher
*2	(N) R10 10k → 4.7k (P)	
*3	(N) L3 : 39UH → 220UH (P) L3 : 22UH → 100UH	
*4	(N) C7 : 13P → 120P (P) C7 : 8P → 56P	
*5	(N) C8 : 130P → 120P (P) C8 : 24P → 56P	
*6	ADD: C62, C63, C64, Q64 R156, R157, R158, R159 R99: 3300 → 1.5K R146: 3300 → 2.2K	DXC-930 (J) 30281 and higher DXC-930 (UC) 10271 and higher DXC-930P (EK) 10481 and higher DXC-960MD (UC) 10051 and higher XC-009 (J) 10171 and higher XC-009P (J) 10061 and higher
*7	R158:100K → 91K	DXC-930 (J) 30331 and higher DXC-930 (UC) 10321 and higher DXC-930P (EK) 10581 and higher DXC-960MD (UC) 10151 and higher XC-009 (J) 10171 and higher XC-009P (J) 10061 and higher

IF-354/354P BOARD

DXC-930 (UC) XC-009 (J)
DXC-930 (J) XC-009P (J)
DXC-930P (EK)
DXC-960MD (UC)

B-WDXC930-IF354/M

1
2
3
4
5

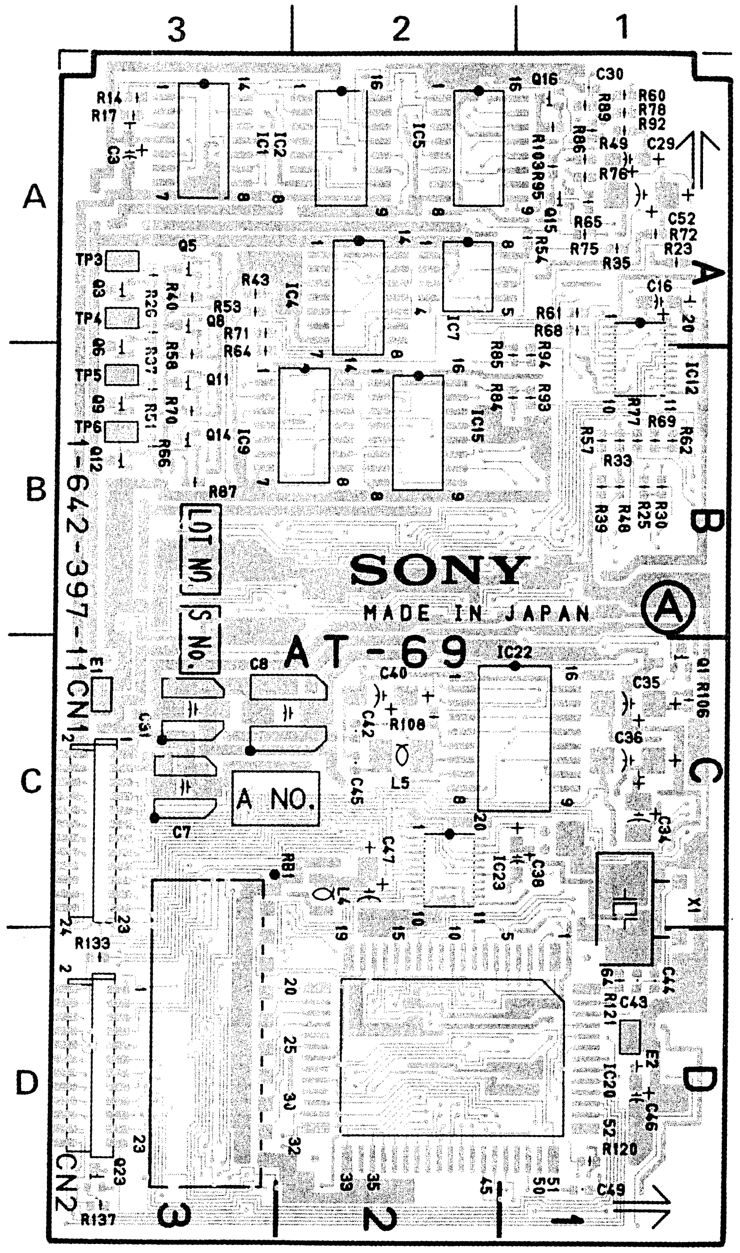
DXC-930/930P
DXC-960MD
XC-009/009P

A | B | C | D | E | F | G | H

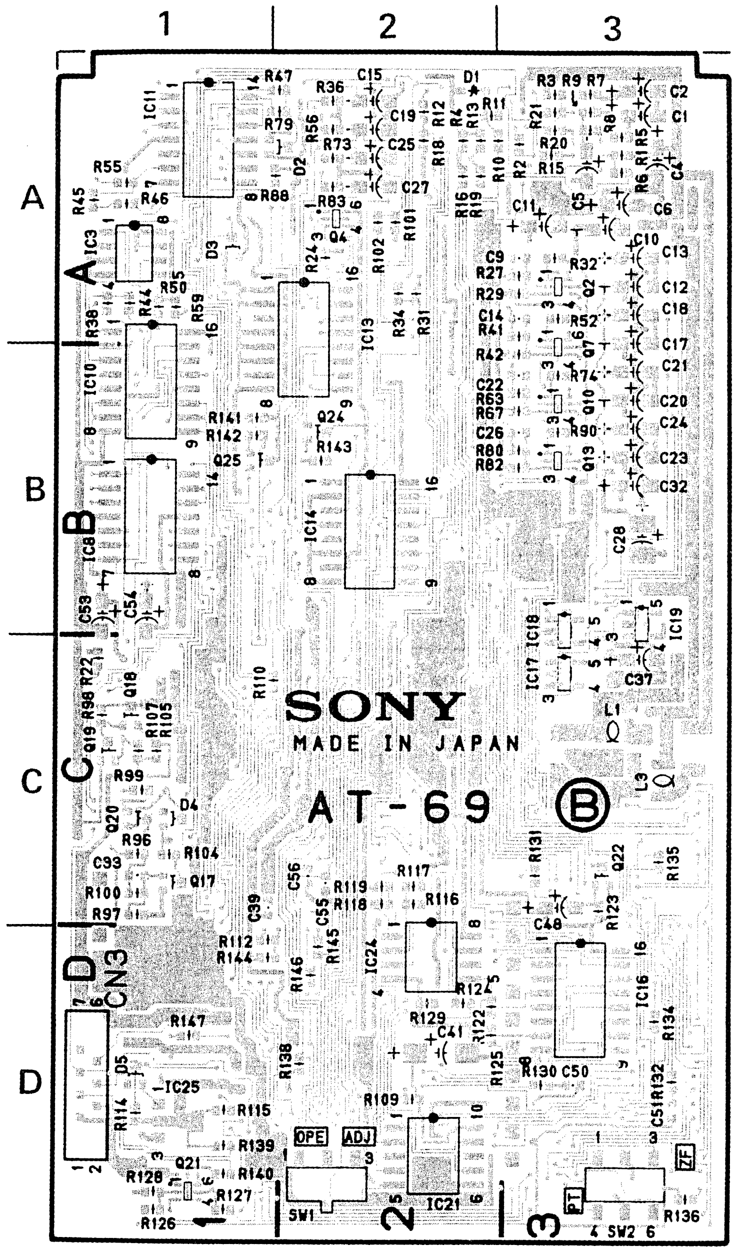
AT-69 BOARD

AT-69 (1-642-397-11, 12)

Ref.	Location
CN1	C-3
CN2	D-3
D1	A-2
D2	A-1
D3	A-1
D4	C-1
D5	D-1
E1	C-3
E2	D-1
IC1	A-3
IC2	A-2
IC3	A-1
IC5	A-1
IC7	A-1
IC8	B-1
IC9	B-3
IC10	B-1
IC11	A-1
IC12	B-1
IC13	A-1
IC14	B-2
IC15	B-2
IC16	D-3
IC17	C-3
IC18	B-3
IC19	B-3
IC20	D-1
IC21	D-2
IC22	C-1
IC23	C-2
IC24	D-2
IC25	D-1
Q1	C-1
Q2	A-3
Q3	A-3
Q4	A-2
Q5	A-3
Q6	B-3
Q7	B-3
Q8	A-3
Q9	B-3
Q10	B-3
Q11	B-3
Q12	B-3
Q13	B-3
Q14	B-3
Q15	A-1
Q16	A-1
Q17	C-1
Q18	C-1
Q19	C-1
Q20	C-1
Q21	D-1
Q22	C-3
Q23	D-3
Q24	B-2
Q25	B-1
RB1	D-3
SW1	D-2
SW2	D-3
TP3	A-3
TP4	A-3
TP5	B-3
TP6	B-3
X1	C-1


3
2
1
A
B
C
D
SONY
MADE IN JAPAN
AT-69
Ⓐ
1-642-397-11
LOT NO.
S NO.
A NO.
CN1
CN2
X1

1-642-397-11, 12 COMPONENT SIDE


1
2
3
A
B
C
D
SONY
MADE IN JAPAN
AT-69
Ⓑ
CN3
OPE
ADJ
SW1
SW2

1-642-397-11, 12 SOLDERING SIDE

AT-69 (1-642-397-11, 12)

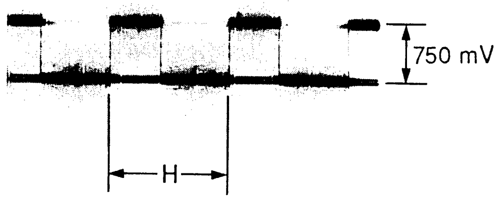
Ref.	Location
CN1	C-3
CN2	D-3
D1	A-2
D2	A-1
D3	A-1
D4	C-1
D5	D-1
E1	C-3
E2	D-1
IC1	A-3
IC2	A-2
IC3	A-1
IC5	A-1
IC7	A-1
IC8	B-1
IC9	B-3
IC10	B-1
IC11	A-1
IC12	B-1
IC13	A-1
IC14	B-2
IC15	B-2
IC16	D-3
IC17	C-3
IC18	B-3
IC19	B-3
IC20	D-1
IC21	D-2
IC22	C-1
IC23	C-2
IC24	D-2
IC25	D-1
Q1	C-1
Q2	A-3
Q3	A-3
Q4	A-2
Q5	A-3
Q6	B-3
Q7	B-3
Q8	A-3
Q9	B-3
Q10	B-3
Q11	B-3
Q12	B-3
Q13	B-3
Q14	B-3
Q15	A-1
Q16	A-1
Q17	C-1
Q18	C-1
Q19	C-1
Q20	C-1
Q21	D-1
Q22	C-3
Q23	D-3
Q24	B-2
Q25	B-1
RB1	D-3
SW1	D-2
SW2	D-3
TP3	A-3
TP4	A-3
TP5	B-3
TP6	B-3
X1	C-1

AT-69 BOARD

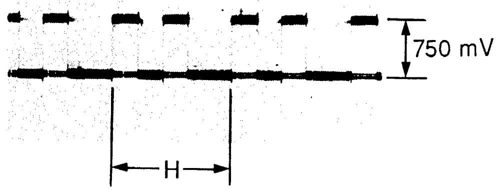
NOTE:

- All voltage are DC, measured with a digital voltmeter.
- DC 電圧はデジタル電圧計による値
- DISPLAY/BARS bottom →"BARS"
- GAIN :00DB
- C. TEMP :3200K
- WHT. BAL :AUTO
- R GAIN :+00
- B GAIN :+00
- CCD IRIS :OFF
- SHUTTER :OFF

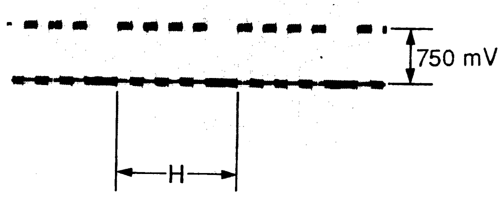
AT, CN2-5 G PR



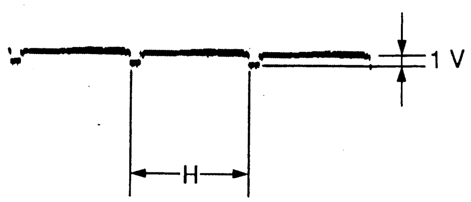
AT, CN2-3 R PR



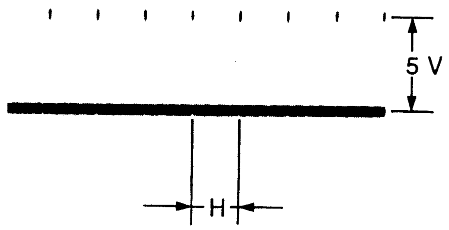
AT, CN2-7 B PR



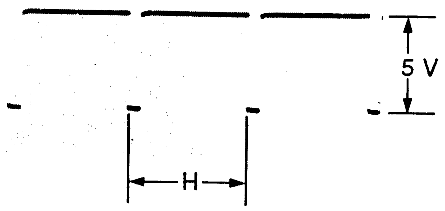
AT, CN1-10 Y (IRIS)



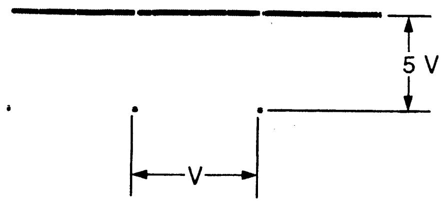
AT, CN1-8 CLP1



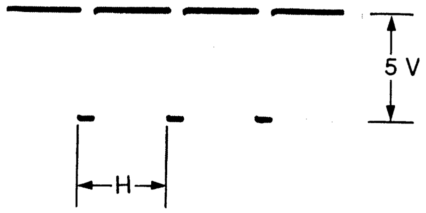
AT, CN1-23 HD



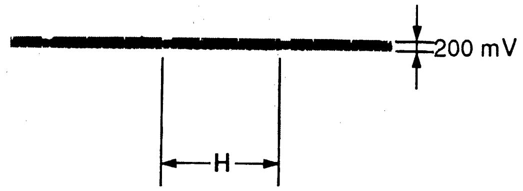
AT, CN2-2 VD



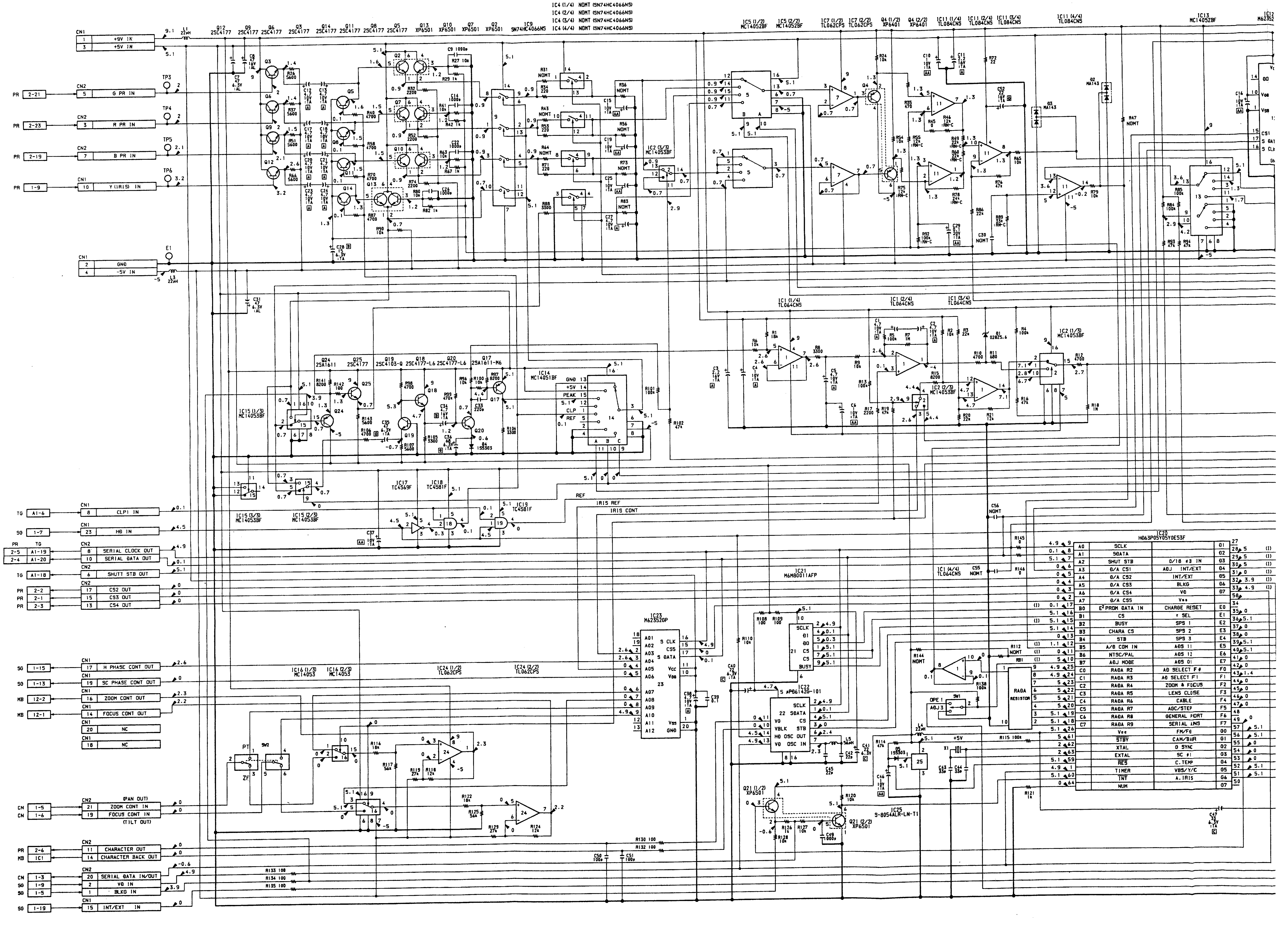
AT, CN2-1 BLKG



AT, CN1-13 REF PULSE



AT-69 BOARD

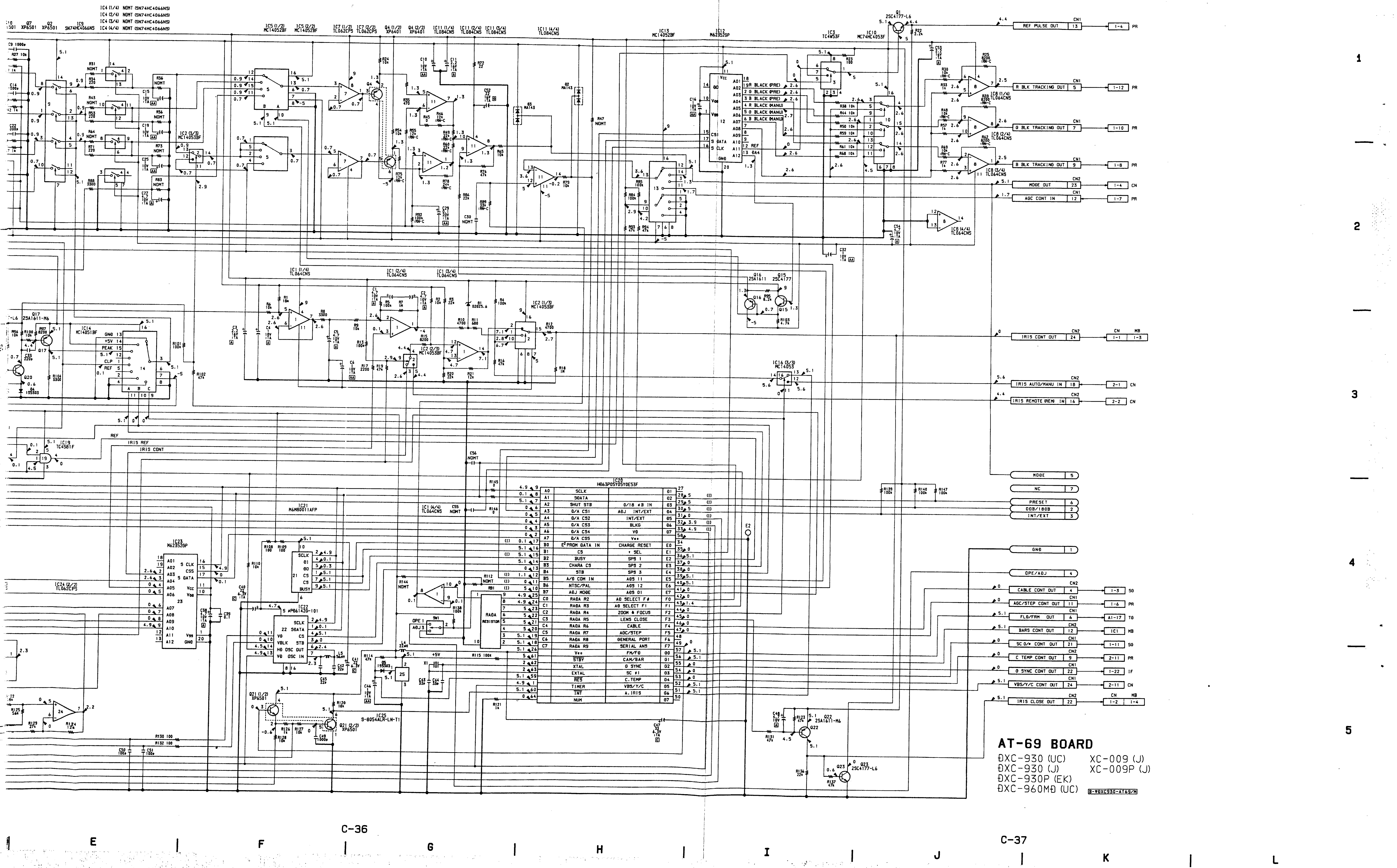

CN1
+9V IN
+5V IN
CN2
G PR IN
R PR IN
B PR IN
Y (IRIS) IN
TP3
TP4
TP5
TP6
PR 2-21
PR 2-23
PR 2-19
PR 1-9
E1
GND
-5V IN
L1 22μH
L3 22μH
IC4 (1/4) NOMT (SN74HC4066NS)
IC4 (2/4) NOMT (SN74HC4066NS)
IC4 (3/4) NOMT (SN74HC4066NS)
IC4 (4/4) NOMT (SN74HC4066NS)
IC9 SN74HC4066NS
IC5 (1/2) MC14052BF
IC5 (2/2) MC14052BF
IC7 (1/2) TL062CPS
IC7 (2/2) TL062CPS
Q4 (1/2) XP6401
Q4 (2/2) XP6401
IC11 (1/4) TL084CNS
IC11 (2/4) TL084CNS
IC11 (3/4) TL084CNS
IC11 (4/4) TL084CNS
IC13 MC14052BF
IC2 (3/3) MC14053BF
IC1 (1/4) TL064CNS
IC1 (2/4) TL064CNS
IC1 (3/4) TL064CNS
IC1 (4/4) TL064CNS
IC2 (1/3) MC14053BF
IC2 (2/3) MC14053BF
IC14 MC14051BF
IC15 (1/3) MC14053BF
IC15 (2/3) MC14053BF
IC15 (3/3) MC14053BF
IC17 TC4S69F
IC18 TC4S81F
IC19 TC4S81F
REF
IRIS REF
IRIS CONT
CLP1 IN
HD IN
SERIAL CLOCK OUT
SERIAL DATA OUT
SHUTT STB OUT
CS2 OUT
CS3 OUT
CS4 OUT
H PHASE CONT OUT
SC PHASE CONT OUT
ZOOM CONT OUT
FOCUS CONT OUT
NC
NC
(PAN OUT)
ZOOM CONT IN
FOCUS CONT IN
(TILT OUT)
CHARACTER OUT
CHARACTER BACK OUT
SERIAL DATA IN/OUT
VD IN
BLKG IN
INT/EXT IN
IC21 M6M80011AFP
IC22 μPD6142G-101
IC23 M62352GP
IC16 (1/3) MC14053
IC16 (2/3) MC14053
IC24 (1/2) TL062CPS
IC24 (2/2) TL062CPS
IC25 S-8054ALR-LN-T1
Q21 (1/2) XP6501
Q21 (2/2) XP6501
IC20 H8/325 HD6475328CP10
RADA RESISTOR
SW1
ZF
PT
SW2
X1

DXC-930/930P
DXC-960MD
XC-009/009P

C-35

C-36

A | B | C | D | E | F | G | H


IC4 (1/4) NOMT (SN74HC4066NS)
IC4 (2/4) NOMT (SN74HC4066NS)
IC4 (3/4) NOMT (SN74HC4066NS)
IC4 (4/4) NOMT (SN74HC4066NS)
Q7 XP6501
Q2 XP6501
IC9 SN74HC4066NS
IC5 (1/2) MC14052BF
IC5 (2/2) MC14052BF
IC7 (1/2) TL062CPS
IC7 (2/2) TL062CPS
Q4 (1/2) XP6401
Q4 (2/2) XP6401
IC11 (1/4) TL084CNS
IC11 (2/4) TL084CNS
IC11 (3/4) TL084CNS
IC11 (4/4) TL084CNS
IC13 MC14052BF
IC12 M62352GP
IC3 TC4W53F
IC10 MC74HC4053F
Q1 2SC4177-L6
IC2 (3/3) MC14053BF
D2 MA143
D3 MA143
IC8 (1/4) TL064CNS
IC8 (2/4) TL064CNS
IC8 (3/4) TL064CNS
IC8 (4/4) TL064CNS
1 R BLACK (PRE)
2 G BLACK (PRE)
3 B BLACK (PRE)
4 R BLACK (MANU)
5 G BLACK (MANU)
6 B BLACK (MANU)
REF PULSE OUT
R BLK TRACKING OUT
G BLK TRACKING OUT
B BLK TRACKING OUT
MODE OUT
AGC CONT IN
IC1 (1/4) TL064CNS
IC1 (2/4) TL064CNS
IC1 (3/4) TL064CNS
IC2 (1/3) MC14053BF
IC2 (2/3) MC14053BF
D1 02DZ5.6
Q16 2SA1611
Q15 2SC4177
Q17 2SA1611-M6
IC14 MC14051BF
GND
+5V
PEAK
CLP
REF
IRIS CONT OUT
IC16 (3/3) MC14053
IRIS AUTO/MANU IN
IRIS REMOTE (REM) IN
IC19 TC4S81F
REF
IRIS REF
IRIS CONT
C56 NOMT
IC20 H063P05Y05Y0E53F
SCLK
SDATA
SHUT STB
D/A CS1
D/A CS2
D/A CS3
D/A CS4
D/A CS5
D/A CS6
E² PROM DATA IN
CS
BUSY
CHARA CS
STB
A/D COM IN
NTSC/PAL
ADJ MODE
RADA R2
RADA R3
RADA R4
RADA R5
RADA R6
RADA R7
RADA R8
RADA R9
Vcc
STBY
XTAL
EXTAL
RES
TIMER
INT
NUM
0/18 dB IN
ADJ INT/EXT
INT/EXT
BLKG
V0
Vss
CHARGE RESET
V SEL
SPS 1
SPS 2
SPS 3
ADS 11
ADS 12
ADS 01
AD SELECT F#
AD SELECT F1
ZOOM & FOCUS
LENS CLOSE
CABLE
AGC/STEP
GENERAL PORT
SERIAL ANS
FM/FD
CAM/BAR
0 SYNC
SC π
C.TEMP
VBS/Y/C
A.IRIS
MODE
NC
PRESET
008/180B
INT/EXT
IC21 M6M80011AFP
IC1 (4/4) TL064CNS
C55 NOMT
E2
IC23 M62352GP
IC24 (2/2) TL062CPS
IC22 μPD6142G-101
IC25 S-8054ALR-LN-T1
Q21 (1/2) XP6501
Q21 (2/2) XP6501
RB1 RADA RESISTOR
OPE 1
SW1
ADJ 3
X1
GND
OPE/ADJ
CABLE CONT OUT
AGC/STEP CONT OUT
FLD/FRM OUT
BARS CONT OUT
SC 0/π CONT OUT
C TEMP CONT OUT
0 SYNC CONT OUT
VBS/Y/C CONT OUT
IRIS CLOSE OUT
Q22 2SA1611-M6
Q23 2SC4177-L6
CN1
CN2
CN
MB
PR
SG
TG
IF
E
F
G
H
I
J
K
L
1
2
3
4
5

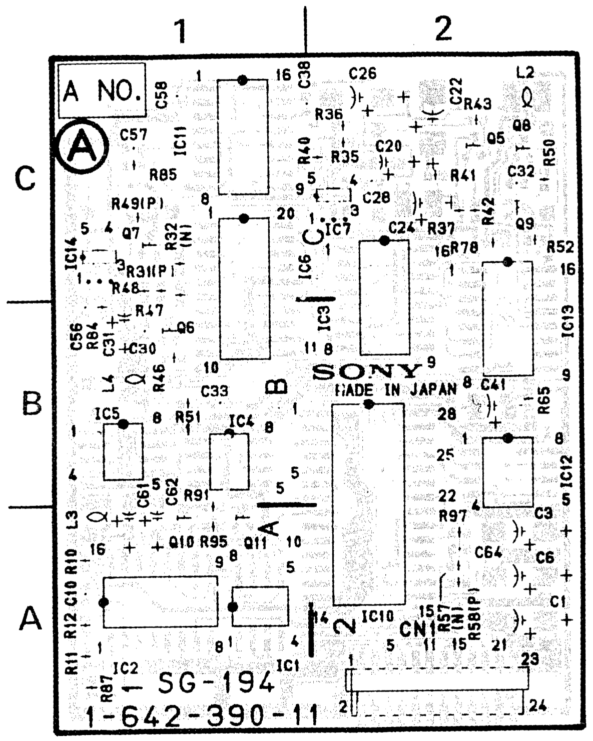
AT-69 BOARD

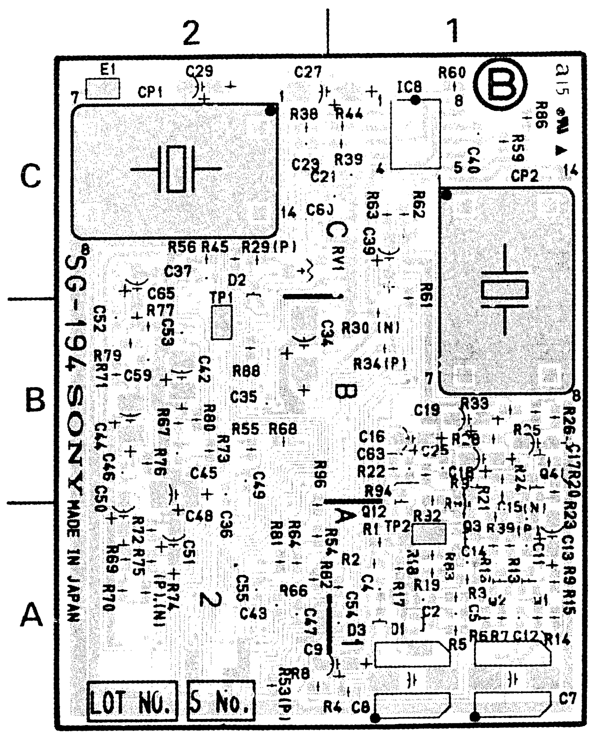
DXC-930 (UC) XC-009 (J)
DXC-930 (J) XC-009P (J)
DXC-930P (EK)
DXC-960MD (UC)

B-VDXC930-AT69/M

```
Serial No. 30001-30230 DXC-930 (J)
           10001-10170 DXC-930 (UC)
           10001-10380 DXC-930P (EK)
           10001-10050 DXC-960MD (UC)
           10001-10170 XC-009 (J)
           10001-10060 XC-009P (EK)
```

SG-194/194P BOARD


1
2
C
B
A
A NO.
Ⓐ
SONY
MADE IN JAPAN
SG-194
1-642-390-11
CN1
IC1
IC2
IC10


2
1
C
B
A
Ⓑ
E1
CP1
CP2
TP1
TP2
RV1
SG-194 SONY MADE IN JAPAN
LOT NO.
S No.

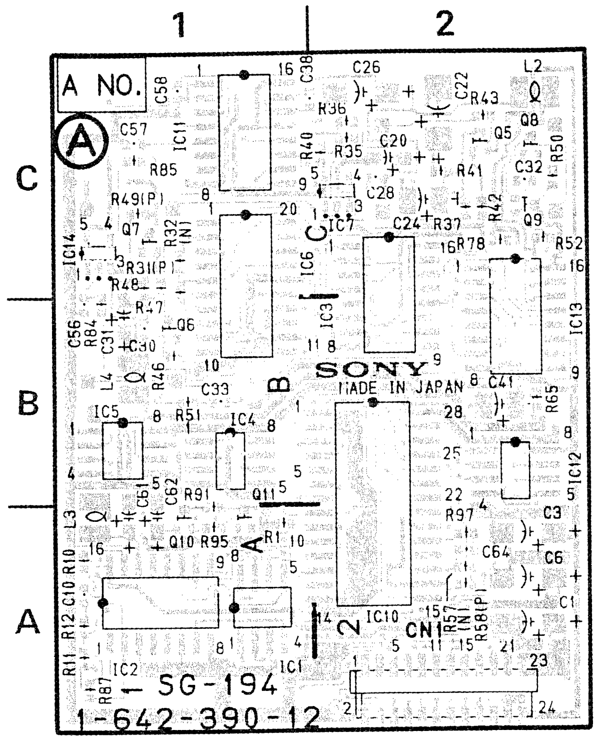
1-642-390-11 SOLDERING SIDE

SG-194/194P (1-642-390-11)

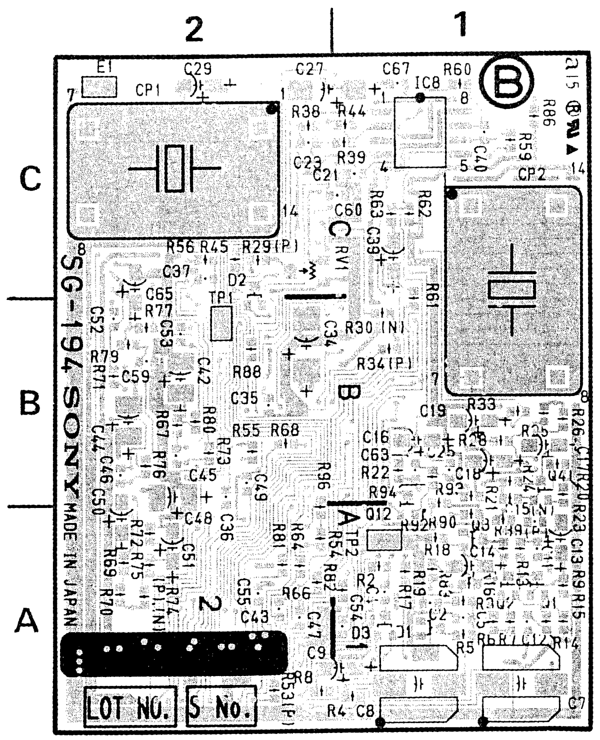
CN1	A-2
CP1	C-2
CP2	C-1
D1	A-1
D2	C-2
D3	A-1
E1	C-2
IC1	A-1
IC2	A-1
IC3	C-2
IC4	B-1
IC5	B-1
IC6	C-1
IC7	C-2
IC8	C-1
IC10	A-1
IC11	C-1
IC12	B-2
IC13	B-2
IC14	C-1
Q1	A-1
Q2	A-1
Q3	A-1
Q4	B-1
Q5	C-2
Q6	B-1
Q7	C-1
Q8	C-2
Q9	C-2
Q10	A-1
Q11	A-1
Q12	A-1
RV1	C-1
TP1	B-2
TP2	A-1

SG-194/194P BOARD

```
Serial No. 30231-30480 DXC-930 (J)
           10171-10570 DXC-930 (UC)
           10381-10980 DXC-930P (EK)
           10051-10250 DXC-960MD (UC)
           10171-10320 XC-009 (J)
           10061-10110 XC-009P (EK)
```


1
2
C
B
A
A NO.
Ⓐ
SONY
MADE IN JAPAN
SG-194
1-642-390-12
CN1
IC1
IC2
IC10

1-642-390-12 COMPONENT SIDE


2
1
C
B
A
Ⓑ
E1
CP1
CP2
TP1
TP2
RV1
SG-194 SONY MADE IN JAPAN
LOT NO.
S No.

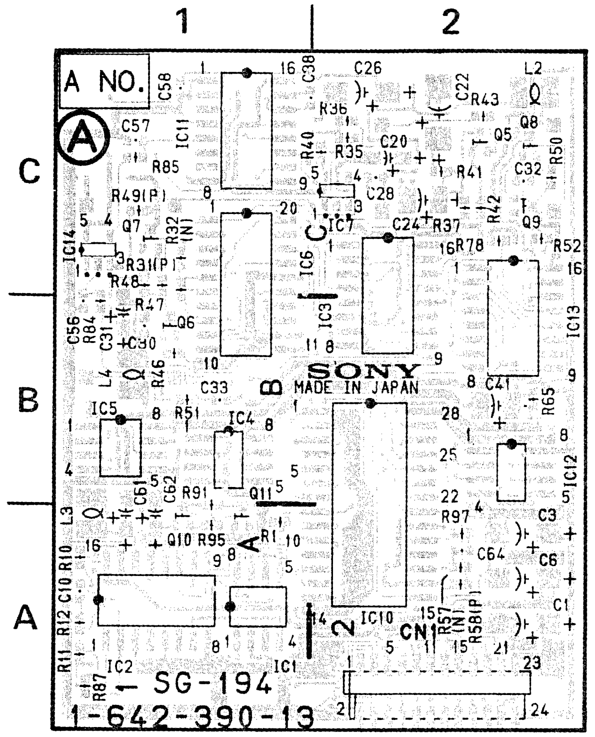
1-642-390-12 SOLDERING SIDE

SG-194/194P (1-642-390-12)

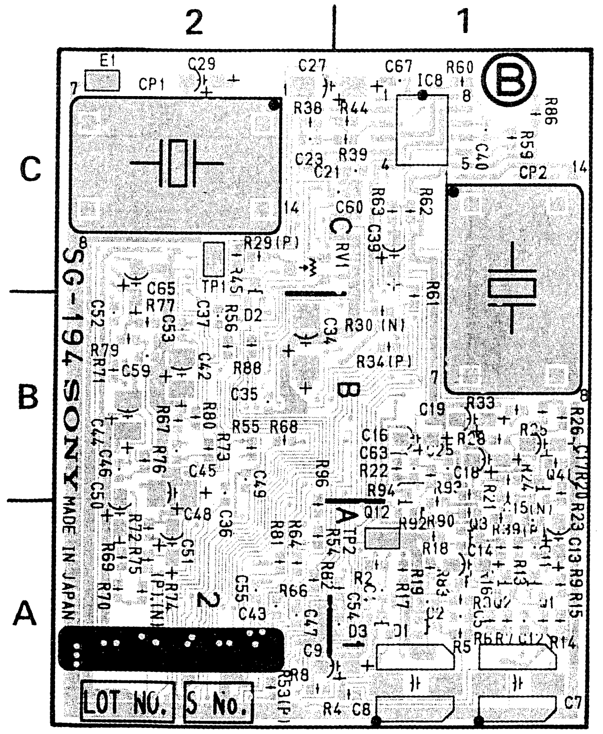
CN1	A-2
CP1	C-2
CP2	C-1
D1	A-1
D2	C-2
D3	A-1
E1	C-2
IC1	A-1
IC2	A-1
IC3	C-2
IC4	B-1
IC5	B-1
IC6	C-1
IC7	C-2
IC8	C-1
IC10	A-1
IC11	C-1
IC12	B-2
IC13	B-2
IC14	C-1
Q1	A-1
Q2	A-1
Q3	A-1
Q4	B-1
Q5	C-2
Q6	B-1
Q7	C-1
Q8	C-2
Q9	C-2
Q10	A-1
Q11	A-1
Q12	A-1
RV1	C-1
TP1	C-2
TP2	A-1

SG-194/194P BOARD

Serial No.	
30481-	DXC-930 (J)
10571-	DXC-930 (UC)
10981-	DXC-930P (EK)
50001-	DXC-930P (UC)
10251-	DXC-960MD (UC)
10321-	XC-009 (J)
10111-	XC-009P (EK)


1
2
C
B
A
A NO.
Ⓐ
SONY
MADE IN JAPAN
SG-194
1-642-390-13
CN1
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC10
IC11
IC12
IC13
IC14

1-642-390-13 COMPONENT SIDE


2
1
C
B
A
Ⓑ
E1
CP1
CP2
IC8
RV1
TP1
TP2
SG-194 SONY MADE IN JAPAN
LOT NO.
S No.

1-642-390-13 SOLDERING SIDE

SG-194/194P (1-642-390-13)

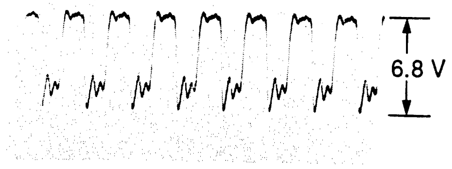
CN1	A-2
CP1	C-2
CP2	C-1
D1	A-1
D2	C-2
D3	A-1
E1	C-2
IC1	A-1
IC2	A-1
IC3	C-2
IC4	B-1
IC5	B-1
IC6	C-1
IC7	C-2
IC8	C-1
IC10	A-1
IC11	C-1
IC12	B-2
IC13	B-2
IC14	C-1
Q1	A-1
Q2	A-1
Q3	A-1
Q4	B-1
Q5	C-2
Q6	B-1
Q7	C-1
Q8	C-2
Q9	C-2
Q10	A-1
Q11	A-1
Q12	A-1
RV1	C-1
TP1	B-2
TP2	A-1

SG-194/194P BOARD

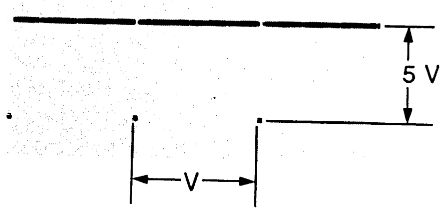
NOTE:

- All voltage are DC, measured with a digital voltmeter.
- DC 電圧はデジタル電圧計による値
- DISPLAY/BARS bottom →"BARS"
- GAIN :00DB
- C. TEMP :3200K
- WHT. BAL :AUTO
- R GAIN :+00
- B GAIN :+00
- CCD IRIS :OFF
- SHUTTER :OFF

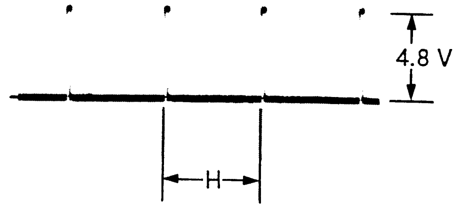
SG, CN1-20 14MHz



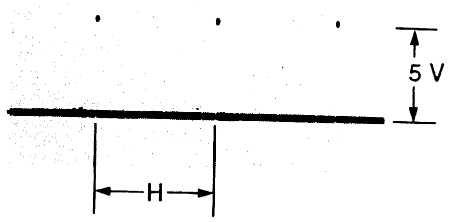
SG, CN1-9 VD



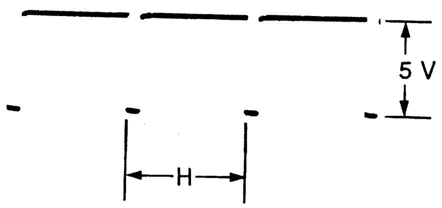
SG, CN1-8 BF



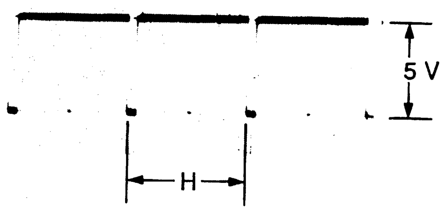
SG, CN1-16 CLP (AGC)



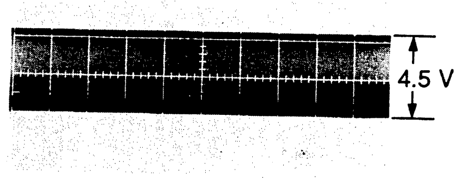
SG, CN1-7 HD



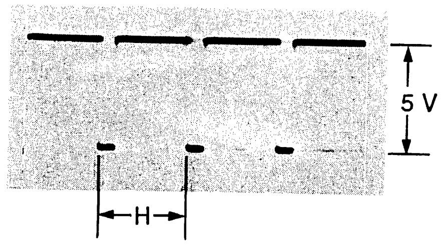
SG, CN1-14 SYNC



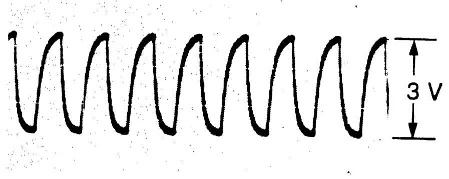
SG, CN1-17 28MHz



SG, CN1-5 BLKG



SG, CN1-12 SC



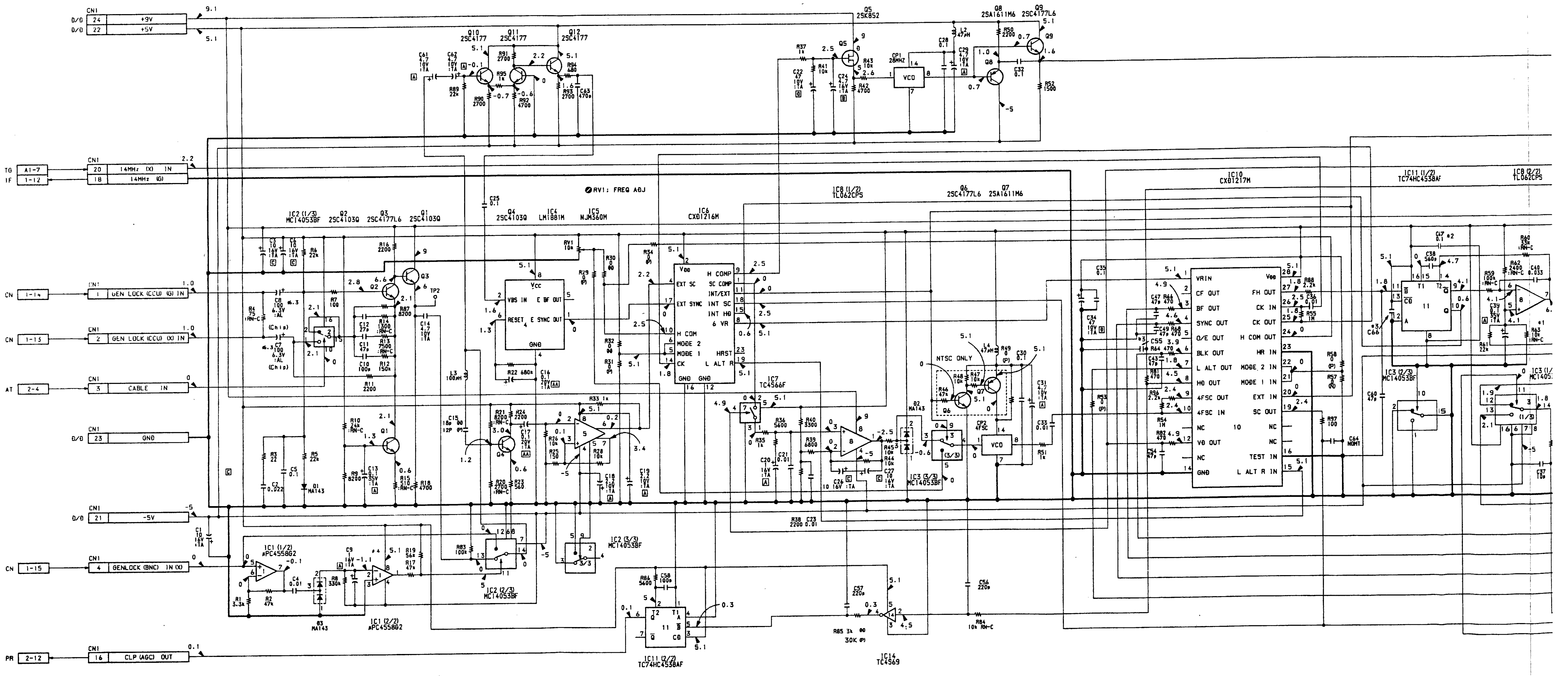
SG-194/194P BOARD

* NOTE

MARK	CHANGE INFORMATION	SERIAL NO.
*1	R63 12k → 10k	DXC-930 (J) 30181 and higher DXC-930 (UC) 10071 and higher DXC-930P (EK) 10131 and higher DXC-960MD (UC) 10001 and higher XC-009 (J) 10071 and higher XC-009P (J) 10001 and higher

* NOTE

MARK	CHANGE INFORMA
*2	C67 ADDED



CN1
D/G 24 +9V
D/G 22 +5V
TG A1-7 20 14MHz (X) IN
IF 1-12 18 14MHz (G)
CN 1-14 1 GEN LOCK (CCU) (G) IN
CN 1-13 2 GEN LOCK (CCU) (X) IN
AT 2-4 3 CABLE IN
D/G 23 GND
D/G 21 -5V
CN 1-15 4 GENLOCK (BNC) IN (X)
PR 2-12 16 CLP (AGC) OUT
Q10 2SC4177
Q11 2SC4177
Q12 2SC4177
Q5 2SK852
Q8 2SA1611M6
Q9 2SC4177L6
CP1 28MHZ
VCO
RV1: FREQ ADJ
IC2 (1/3) MC14053BF
Q2 2SC4103Q
Q3 2SC4177L6
Q1 2SC4103Q
Q4 2SC4103Q
IC4 LM1881M
IC5 NJM360M
IC6 CXD1216M
IC8 (1/2) TL062CPS
Q6 2SC4177L6
Q7 2SA1611M6
IC10 CXD1217M
IC11 (1/2) TC74HC4538AF
IC8 (2/2) TL062CPS
Vcc
VBS IN
E BF OUT
RESET
E SYNC OUT
GND
VDD
EXT SC
EXT SYNC
H COMP
SC COMP
INT/EXT
INT SC
INT HD
6 VR
H COM
MODE 2
MODE 1
CK
L ALT R
HRST
GND
IC7 TC4566F
NTSC ONLY
IC3 (3/3) MC14053BF
VRIN
CF OUT
BF OUT
SYNC OUT
O/E OUT
BLK OUT
L ALT OUT
HD OUT
4FSC OUT
4FSC IN
NC
VD OUT
GND
FH OUT
CK IN
CK OUT
H COM OUT
HR IN
MODE 2 IN
MODE 1 IN
EXT IN
SC OUT
TEST IN
L ALT R IN
IC3 (2/3) MC14053BF
IC1 (1/2) μPC4558G2
IC1 (2/2) μPC4558G2
D1 MA143
D3 MA143
D2 MA143
IC2 (2/3) MC14053BF
IC2 (3/3) MC14053BF
IC11 (2/2) TC74HC4538AF
IC14 TC4S69

1

2

3

4

5

* NOTE

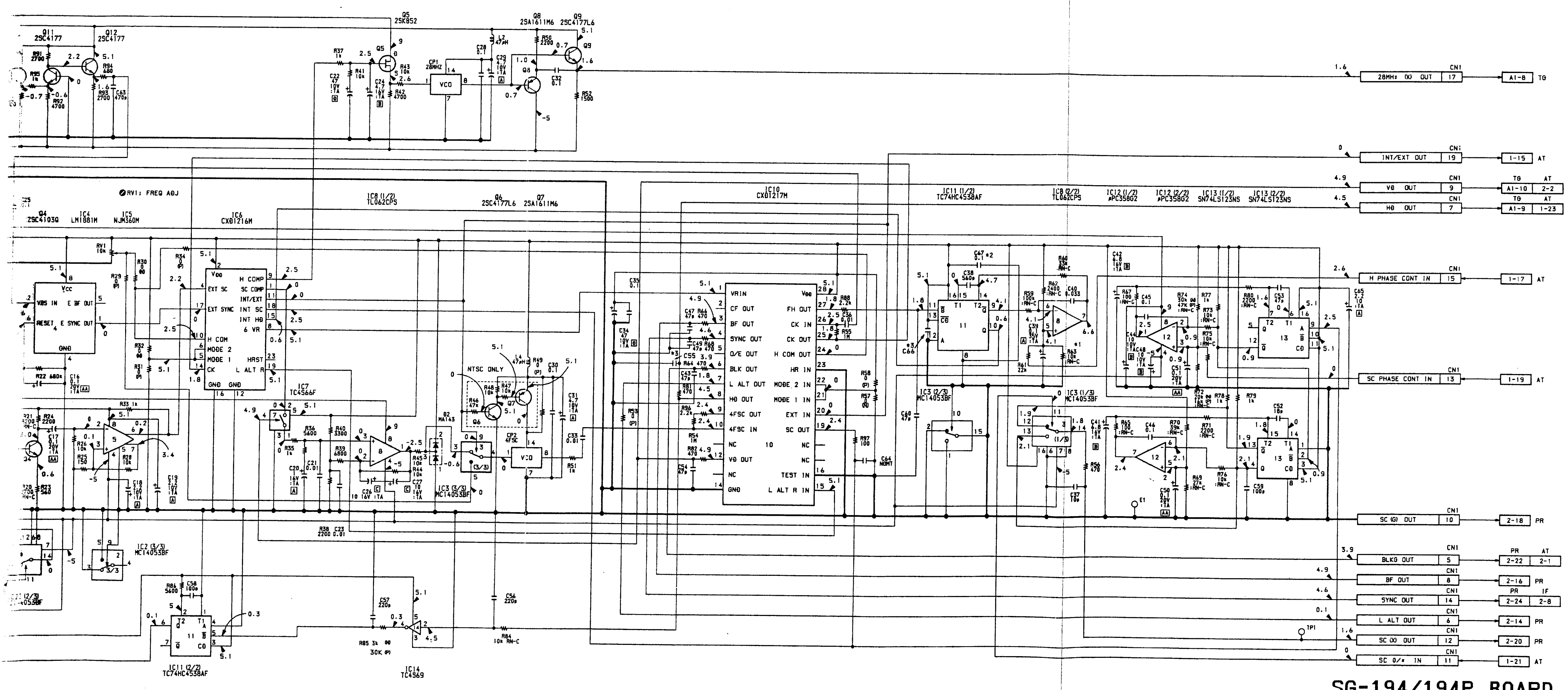
MARK	CHANGE INFORMATION	SERIAL NO.
*1	R63 12k → 10k	DXC-930 (J) 30181 and higher DXC-930 (UC) 10071 and higher DXC-930P (EK) 10131 and higher DXC-960MD (UC) 10001 and higher XC-009 (J) 10071 and higher XC-009P (J) 10001 and higher

* NOTE

MARK	CHANGE INFORMATION	SERIAL NO.
*2	C67 ADDED	DXC-930 (J) 30231 and higher DXC-930 (UC) 10171 and higher DXC-930P (EK) 10381 and higher DXC-960MD (UC) 10051 and higher XC-009 (J) 10171 and higher XC-009P (J) 10061 and higher

* NOTE

MARK	CHANGE INFORMATION	SERIAL NO.
*3	C55 (47p) DELETED C66 (0.1uF) DELETED	DXC-930 (J) 30281 and higher DXC-930 (UC) 10271 and higher DXC-930P (EK) 10481 and higher DXC-960MD (UC) 10051 and higher XC-009 (J) 10171 and higher XC-009P (J) 10061 and higher


Q11 2SC4177
Q12 2SC4177
Q5 2SK852
Q8 2SA1611M6
Q9 2SC4177L6
CP1 28MHz
VCO
Q4 2SC4103Q
IC4 LM1881M
IC5 NJM360M
RV1: FREQ ADJ
IC6 CXD1216M
IC8 (1/2) TL062CPS
Q6 2SC4177L6
Q7 2SA1611M6
NTSC ONLY
IC7 TC4566F
IC3 (3/3) MC14053BF
IC2 (3/3) MC14053BF
IC10 CXD1217M
IC11 (1/2) TC74HC4538AF
IC8 (2/2) TL062CPS
IC12 (1/2) μPC358G2
IC12 (2/2) μPC358G2
IC13 (1/2) SN74LS123NS
IC13 (2/2) SN74LS123NS
IC3 (2/3) MC14053BF
IC3 (1/3) MC14053BF
IC11 (2/2) TC74HC4538AF
IC14 TC4569
TP1
28MHz XO OUT 17 CN1 A1-8 TG
INT/EXT OUT 19 CN1 1-15 AT
VD OUT 9 CN1 A1-10 2-2 TG AT
HD OUT 7 CN1 A1-9 1-23 TG AT
H PHASE CONT IN 15 CN1 1-17 AT
SC PHASE CONT IN 13 CN1 1-19 AT
SC (Q) OUT 10 CN1 2-18 PR
BLKG OUT 5 CN1 2-22 2-1 PR AT
BF OUT 8 CN1 2-16 PR
SYNC OUT 14 CN1 2-24 2-8 PR IF
L ALT OUT 6 CN1 2-14 PR
SC (X) OUT 12 CN1 2-20 PR
SC 0/π IN 11 CN1 1-21 AT

SG-194/194P BOARD

DXC-930 (UC)
DXC-930 (J)
DXC-930P (EK)
DXC-960MD (UC)

XC-009 (J)
XC-009P (J)

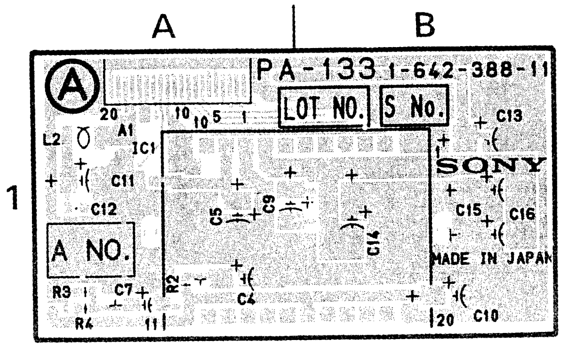
B-¥DXC930-SG194/M

```
Serial No. 30001-30230 DXC-930 (J)
           10001-10170 DXC-930 (UC)
           10001-10380 DXC-930P (EK)
           10001-10050 DXC-960MD (UC)
           10001-10170 XC-009 (J)
           10001-10060 XC-009P (EK)
```

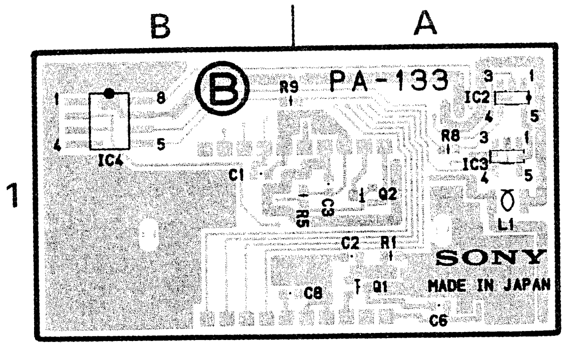
PA-133 BOARD

PA-133 (1-642-388-11, 12)

IC2	A-1
IC3	A-1
IC4	B-1
Q1	A-1
Q2	A-1


A
B
1
Ⓐ
PA-133 1-642-388-11
LOT NO.
S No.
A NO.
SONY
MADE IN JAPAN
IC1
C4
C5
C7
C9
C10
C11
C12
C13
C14
C15
C16
L2
R2
R3
R4

1-642-388-11, 12 COMPONENT SIDE

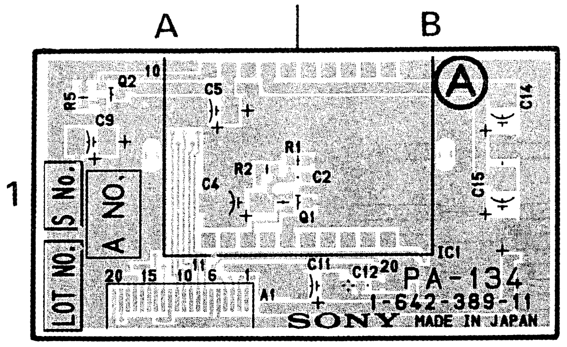

B
A
1
Ⓑ
PA-133
IC2
IC3
IC4
C1
C2
C3
C6
C8
Q1
Q2
R1
R5
R8
R9
L1
SONY
MADE IN JAPAN

1-642-388-11, 12 SOLDERING SIDE

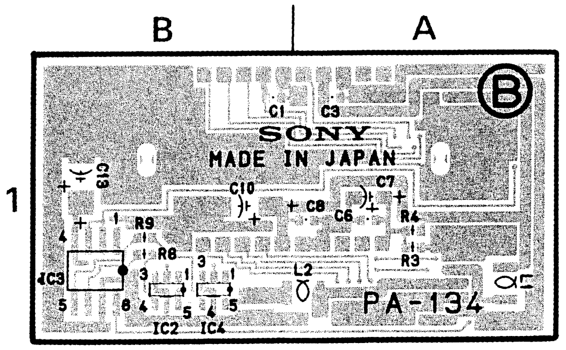
PA-134 BOARD

PA-134 (1-642-389-11, 12)

IC2	B-1
IC3	B-1
IC4	B-1
Q1	B-1
Q2	A-1


A
B
1
Ⓐ
PA-134
1-642-389-11
SONY
MADE IN JAPAN
LOT NO.
S No.
A NO.
IC1
A1
C2
C4
C5
C9
C11
C12
C14
C15
Q1
Q2
R1
R2
R5

1-642-389-11, 12 COMPONENT SIDE

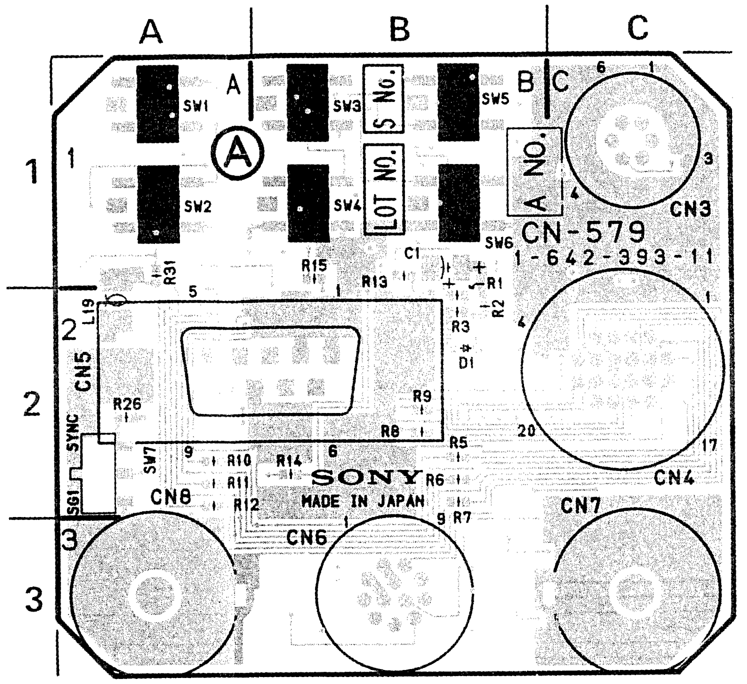

B
A
1
Ⓑ
SONY
MADE IN JAPAN
PA-134
C1
C3
C6
C7
C8
C10
C13
IC2
IC3
IC4
L1
L2
R3
R4
R8
R9

1-642-389-11, 12 SOLDERING SIDE

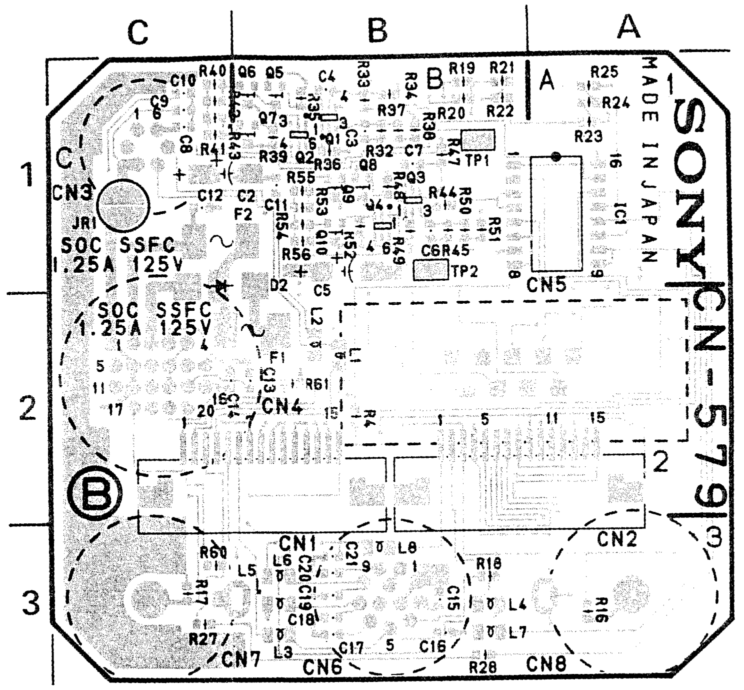
CN-579 BOARD

CN-579 (1-642-393-11)

CN1	B-2
CN2	A-2
D1	B-2
D2	C-2
F1	B-2
F2	C-1
IC1	A-1
Q1	B-1
Q2	B-1
Q3	B-1
Q4	B-1
Q5	B-1
Q6	B-1
Q7	B-1
Q8	B-1
Q9	B-1
Q10	B-1
SW1	A-1
SW2	A-1
SW3	B-1
SW4	B-1
SW5	B-1
SW6	B-1
SW7	A-2
TP1	B-1
TP2	B-1


A
B
C
1
2
3
Ⓐ
CN-579
1-642-393-11
SW1
SW2
SW3
SW4
SW5
SW6
SW7
S No.
LOT NO.
A NO.
CN3
CN4
CN5
CN6
CN7
CN8
SYNC
SG1
SONY
MADE IN JAPAN

1-642-393-11 COMPONENT SIDE

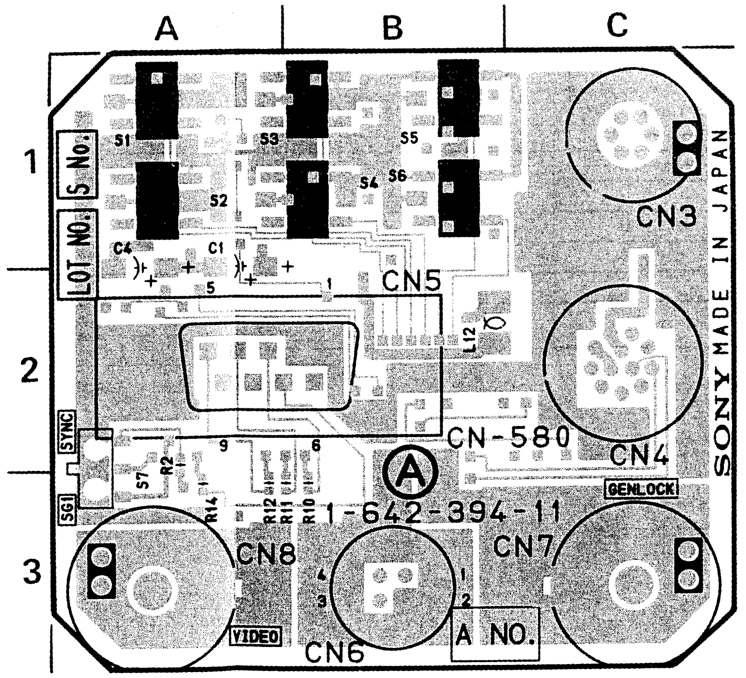

C
B
A
1
2
3
Ⓑ
SONY
CN-579
MADE IN JAPAN
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
JR1
SOC SSFC
1.25A 125V
IC1
TP1
TP2
F1
F2

1-642-393-11 SOLDERING SIDE

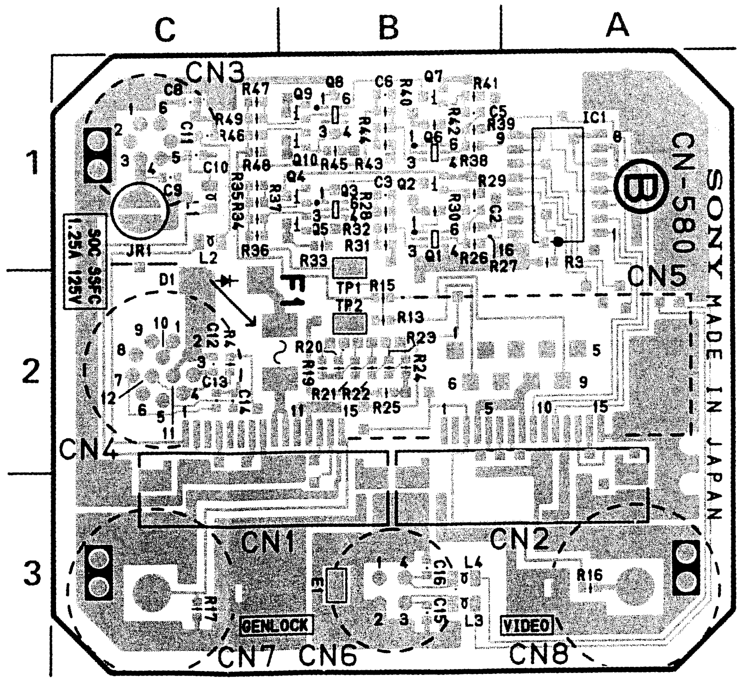
CN-580 BOARD

CN-580 (1-642-394-11)

CN1	C-2
CN2	A-2
D1	C-1
F1	B-2
IC1	A-1
Q1	B-1
Q2	B-1
Q3	B-1
Q4	B-1
Q5	B-1
Q6	B-1
Q7	B-1
Q8	B-1
Q9	B-1
Q10	B-1
S1	A-1
S2	A-1
S3	B-1
S4	B-1
S5	B-1
S6	B-1
S7	A-2
TP1	B-1
TP2	B-2

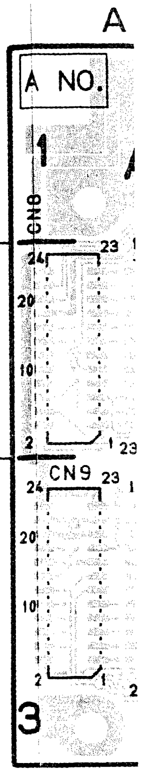

A
B
C
1
2
3
Ⓐ
CN-580
1-642-394-11
S No.
LOT NO.
A NO.
S1
S2
S3
S4
S5
S6
S7
CN3
CN4
CN5
CN6
CN7
CN8
GENLOCK
VIDEO
SYNC
SG1
SONY MADE IN JAPAN

1-642-394-11 COMPONENT SIDE


C
B
A
1
2
3
Ⓑ
CN-580
SONY MADE IN JAPAN
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
GENLOCK
VIDEO
JR1
SOC SSFC 1.25A 125V
IC1
F1
TP1
TP2

1-642-394-11 SOLDERING SIDE

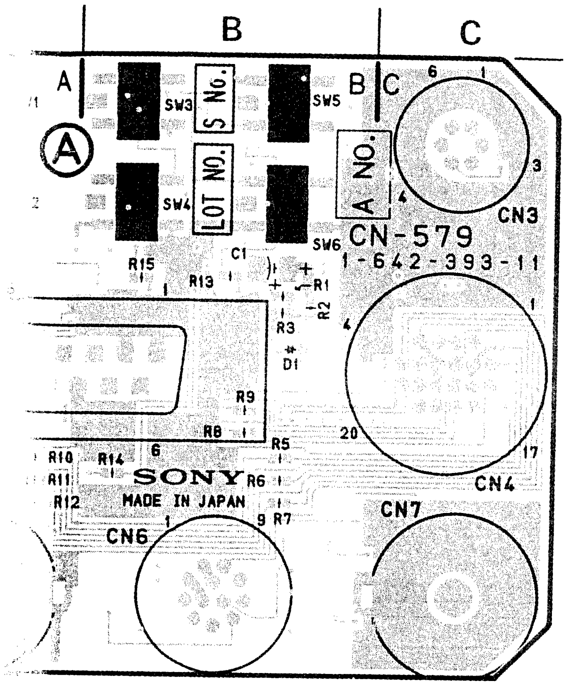
MB-380 BOA


A
1
2
3
A NO.
CN8
CN9

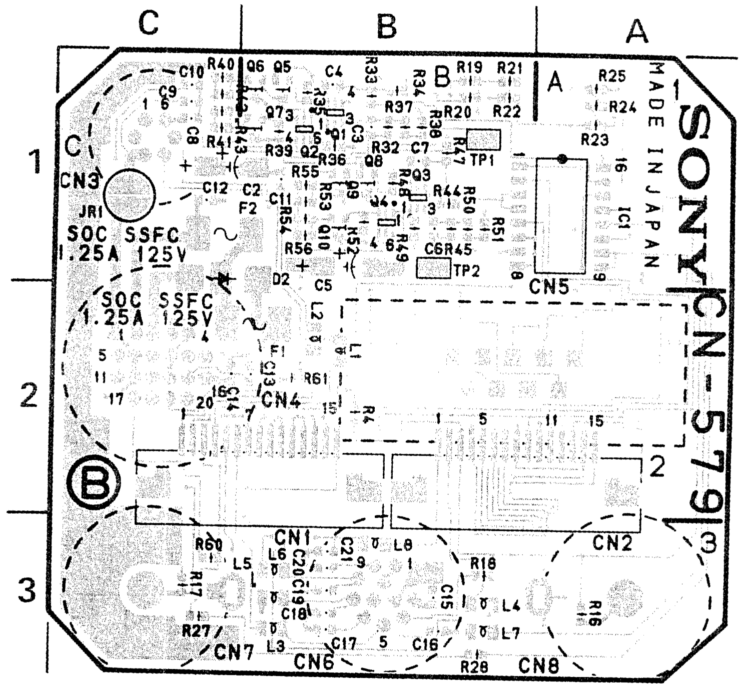
-30230 DXC-930 (J)
-10170 DXC-930 (UC)
-10380 DXC-930P (EK)
-10050 DXC-960MD (UC)
-10170 XC-009 (J)
-10060 XC-009P (EK)

MB-380 BOARD

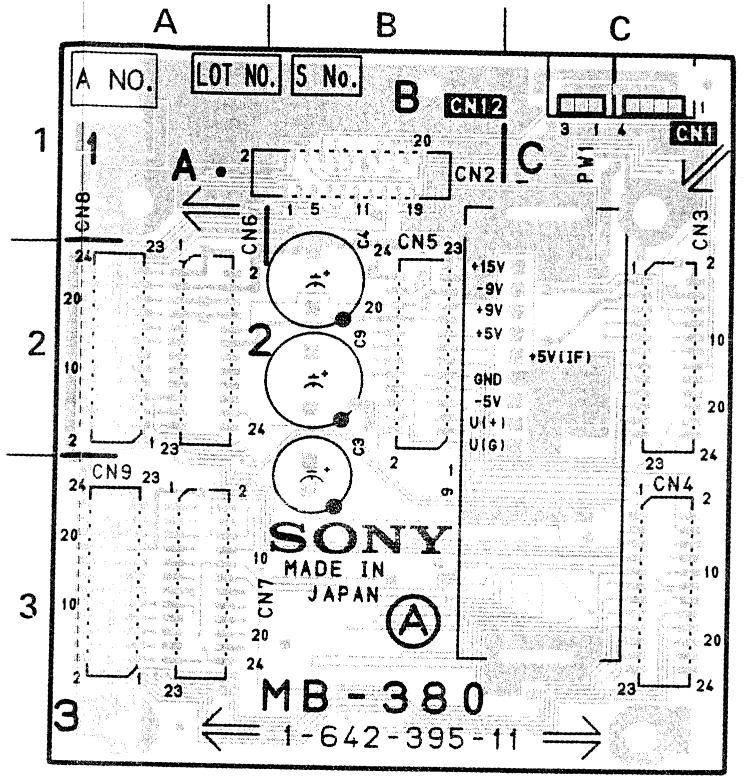
Serial No. 30001-30230 DXC-930 (J)
10001-10170 DXC-930 (UC)
10001-10380 DXC-930P (EK)
10001-10050 DXC-960MD (UC)
10001-10170 XC-009 (J)
10001-10060 XC-009P (EK)


CN-579
1-642-393-11
SW3
SW4
SW5
SW6
S No.
LOT NO.
A NO.
CN3
CN4
CN6
CN7
SONY
MADE IN JAPAN

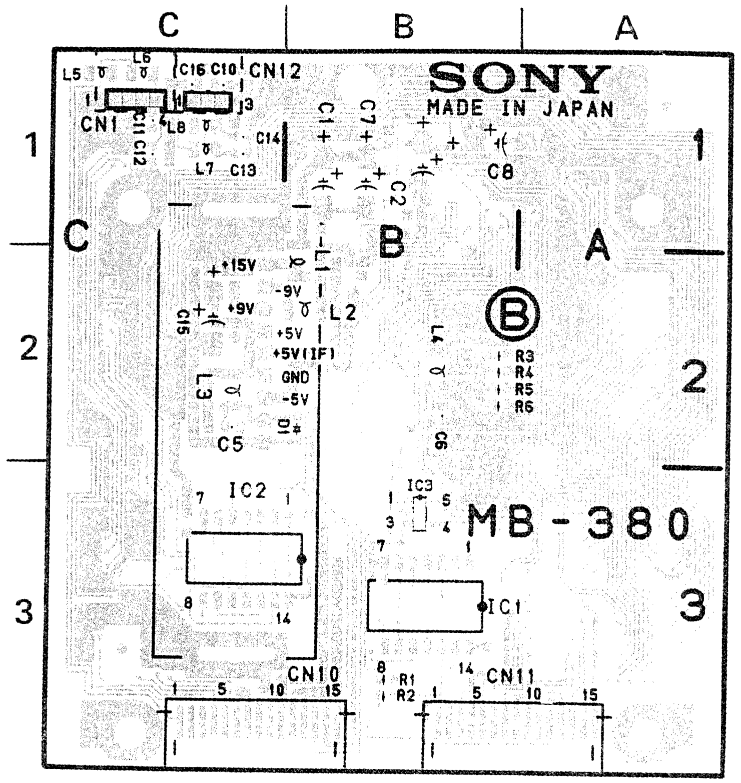
1-642-393-11 COMPONENT SIDE


CN-579
SONY
MADE IN JAPAN
SOC SSFC 1.25A 125V
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
IC1
TP1
TP2

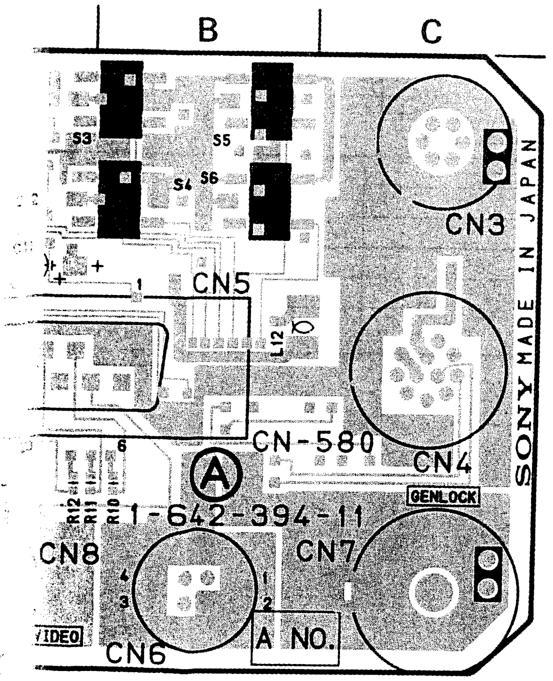
1-642-393-11 SOLDERING SIDE


A NO.
LOT NO.
S No.
CN12
CN1
PW1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
+15V
-9V
+9V
+5V
+5V (IF)
GND
-5V
V(+)
V(G)
SONY
MADE IN JAPAN
MB-380
1-642-395-11

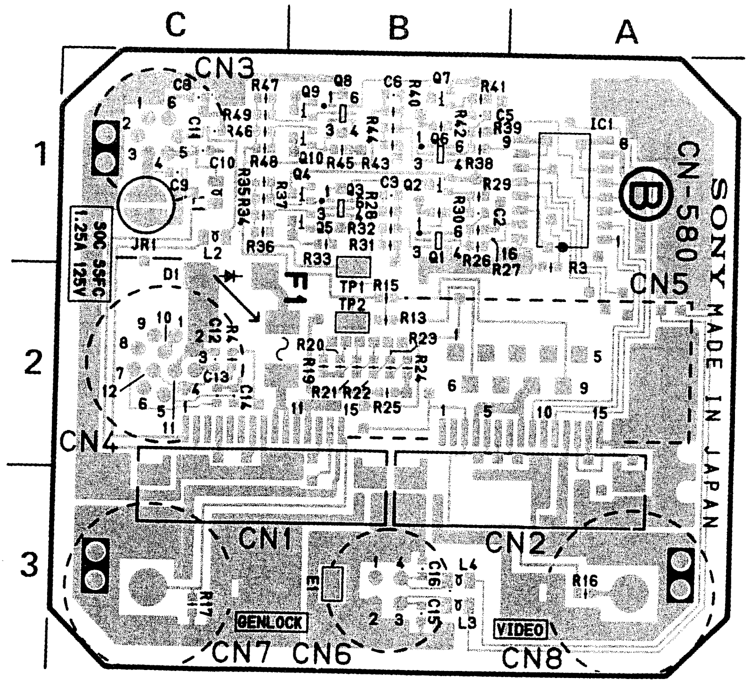
1-642-395-11 COMPONENT SIDE


SONY
MADE IN JAPAN
CN1
CN12
CN10
CN11
IC1
IC2
IC3
L2
L3
+15V
-9V
+9V
+5V
+5V (IF)
GND
-5V
MB-380

1-642-395-11 SOLDERING SIDE


CN-580
1-642-394-11
CN3
CN4
CN5
CN6
CN7
CN8
GENLOCK
VIDEO
A NO.
SONY MADE IN JAPAN

1-642-394-11 COMPONENT SIDE


CN-580
SONY
MADE IN JAPAN
SOC SSFC 1.25A 125V
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
IC1
F1
GENLOCK
VIDEO

1-642-394-11 SOLDERING SIDE

MB-380 (1-642-395-11)

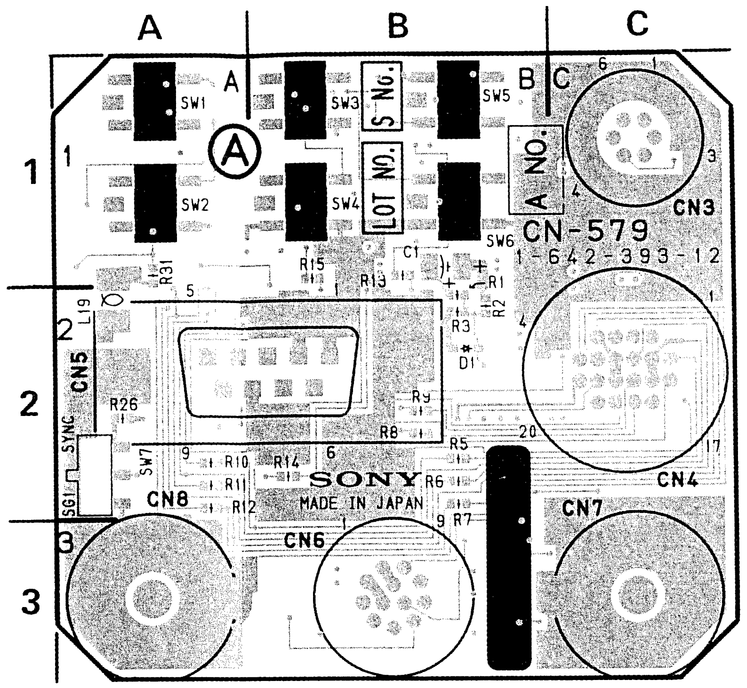
CN1	C-1
CN2	B-1
CN3	C-2
CN4	C-3
CN5	B-2
CN6	A-2
CN7	A-3
CN8	A-2
CN9	A-3
CN10	C-3
CN11	B-3
CN12	C-1
D1	B-2
IC1	B-3
IC2	C-3
IC3	B-3
PW1	B-2

CN-579 BOARD

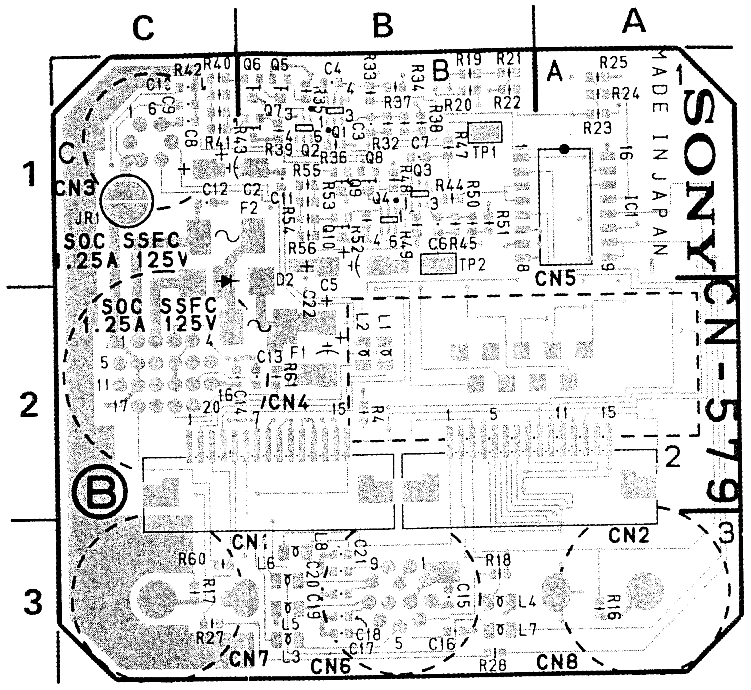
Serial No.	
30231-	DXC-930 (J)
10171-	DXC-930 (UC)
10381-	DXC-930P (EK)
50001-	DXC-930P (UC)
10051-	DXC-960MD (UC)
10171-	XC-009 (J)
10061-	XC-009P (EK)

CN-579 (1-642-393-12)

CN1	B-2
CN2	A-2
D1	B-2
D2	C-2
F1	B-2
F2	C-1
IC1	A-1
Q1	B-1
Q2	B-1
Q3	B-1
Q4	B-1
Q5	B-1
Q6	B-1
Q7	B-1
Q8	B-1
Q9	B-1
Q10	B-1
SW1	A-1
SW2	A-1
SW3	B-1
SW4	B-1
SW5	B-1
SW6	B-1
SW7	A-2
TP1	B-1
TP2	B-1

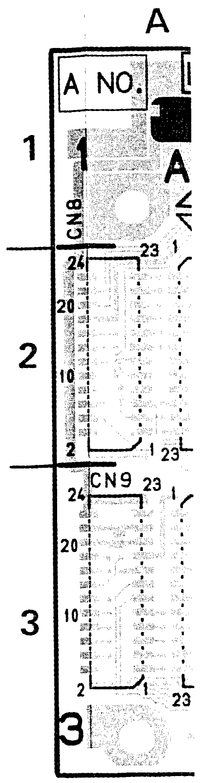

A
B
C
1
2
3
SW1
SW2
SW3
SW4
SW5
SW6
SW7
S No.
LOT NO.
A NO.
CN-579
1-642-393-12
CN3
CN4
CN5
CN6
CN7
CN8
SONY
MADE IN JAPAN
SYNC
R1
R2
R3
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
R26
R31
C1
D1
L19

1-642-393-12 COMPONENT SIDE


C
B
A
1
2
3
SONY
CN-579
MADE IN JAPAN
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
SOC SSFC
.25A 125V
SOC SSFC
1.25A 125V
JR1
IC1
TP1
TP2
F1
F2
D2
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
L1
L2
L3
L4
L5
L6
L7
L8

1-642-393-12 SOLDERING SIDE

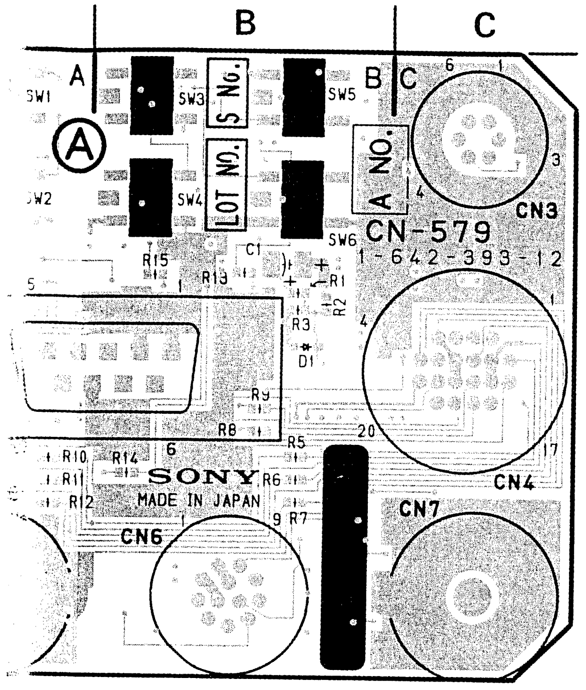
MB-380 BOAR


A
A NO.
1
2
3
CN8
CN9
24
23
20
10
2

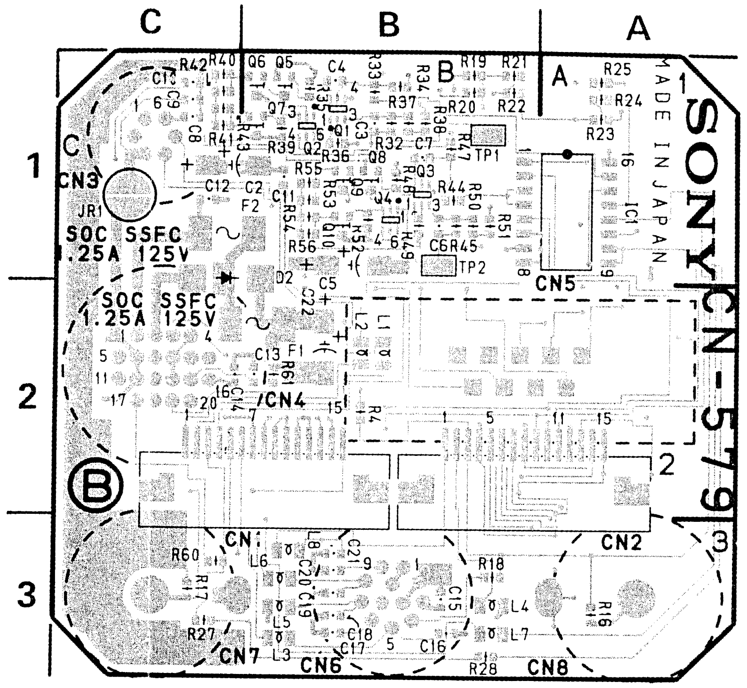
231-	DXC-930 (J)
171-	DXC-930 (UC)
381-	DXC-930P (EK)
001-	DXC-930P (UC)
051-	DXC-960MD (UC)
71-	XC-009 (J)
061-	XC-009P (EK)

MB-380 BOARD

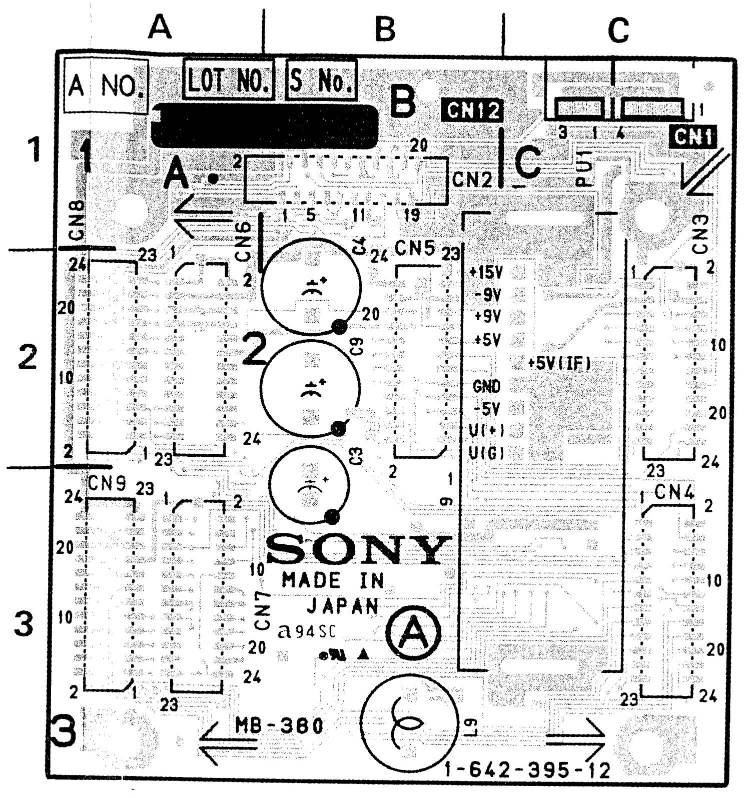
Serial No.	
30231-	DXC-930 (J)
10171-	DXC-930 (UC)
10381-	DXC-930P (EK)
50001-	DXC-930P (UC)
10051-	DXC-960MD (UC)
10171-	XC-009 (J)
10061-	XC-009P (EK)


A
B
C
SW1
SW2
SW3
SW4
SW5
SW6
S No.
LOT NO.
A NO.
Ⓐ
CN-579
1-642-393-12
CN3
CN4
CN6
CN7
SONY
MADE IN JAPAN
R1
R2
R3
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
C1
D1

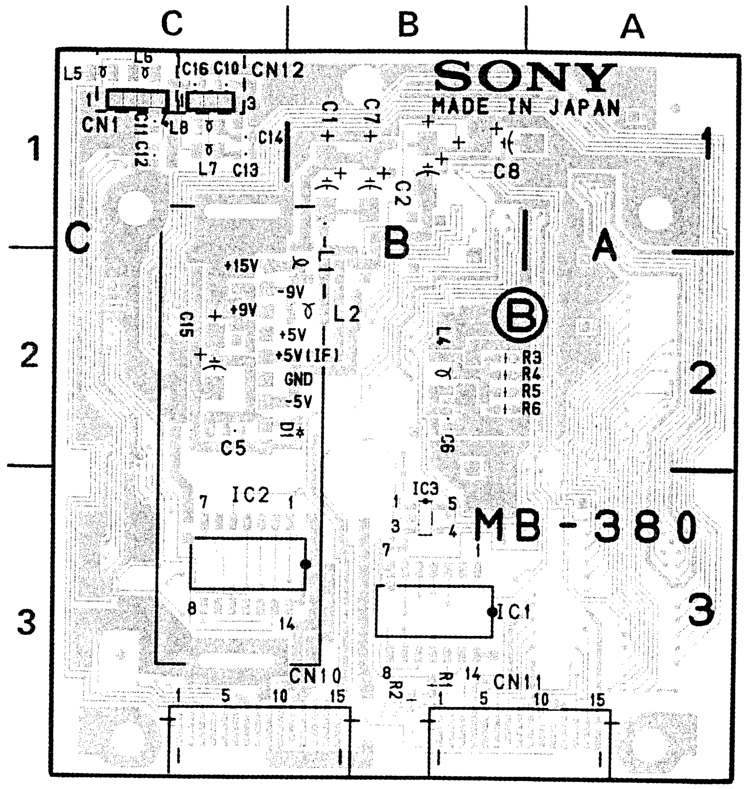
1-642-393-12 COMPONENT SIDE


C
B
A
1
2
3
Ⓑ
SONY
MADE IN JAPAN
CN-579
CN2
CN3
CN4
CN5
CN6
CN7
CN8
SOC SSFC 1.25A 125V
F1
F2
JR1
TP1
TP2
IC1

1-642-393-12 SOLDERING SIDE


A
B
C
1
2
3
A NO.
LOT NO.
S No.
CN12
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
PW1
C3
C4
C9
+15V
-9V
+9V
+5V
+5V(IF)
GND
-5V
U(+)
U(G)
SONY
MADE IN JAPAN
Ⓐ
MB-380
1-642-395-12

1-642-395-12 COMPONENT SIDE


C
B
A
1
2
3
SONY
MADE IN JAPAN
CN1
CN10
CN11
CN12
IC1
IC2
IC3
L1
L2
L4
L5
L6
L7
L8
C1
C2
C5
C6
C7
C8
C11
C12
C13
C14
C15
C16
R1
R2
R3
R4
R5
R6
D1
+15V
-9V
+9V
+5V
+5V(IF)
GND
-5V
Ⓑ
MB-380

1-642-395-12 SOLDERING SIDE

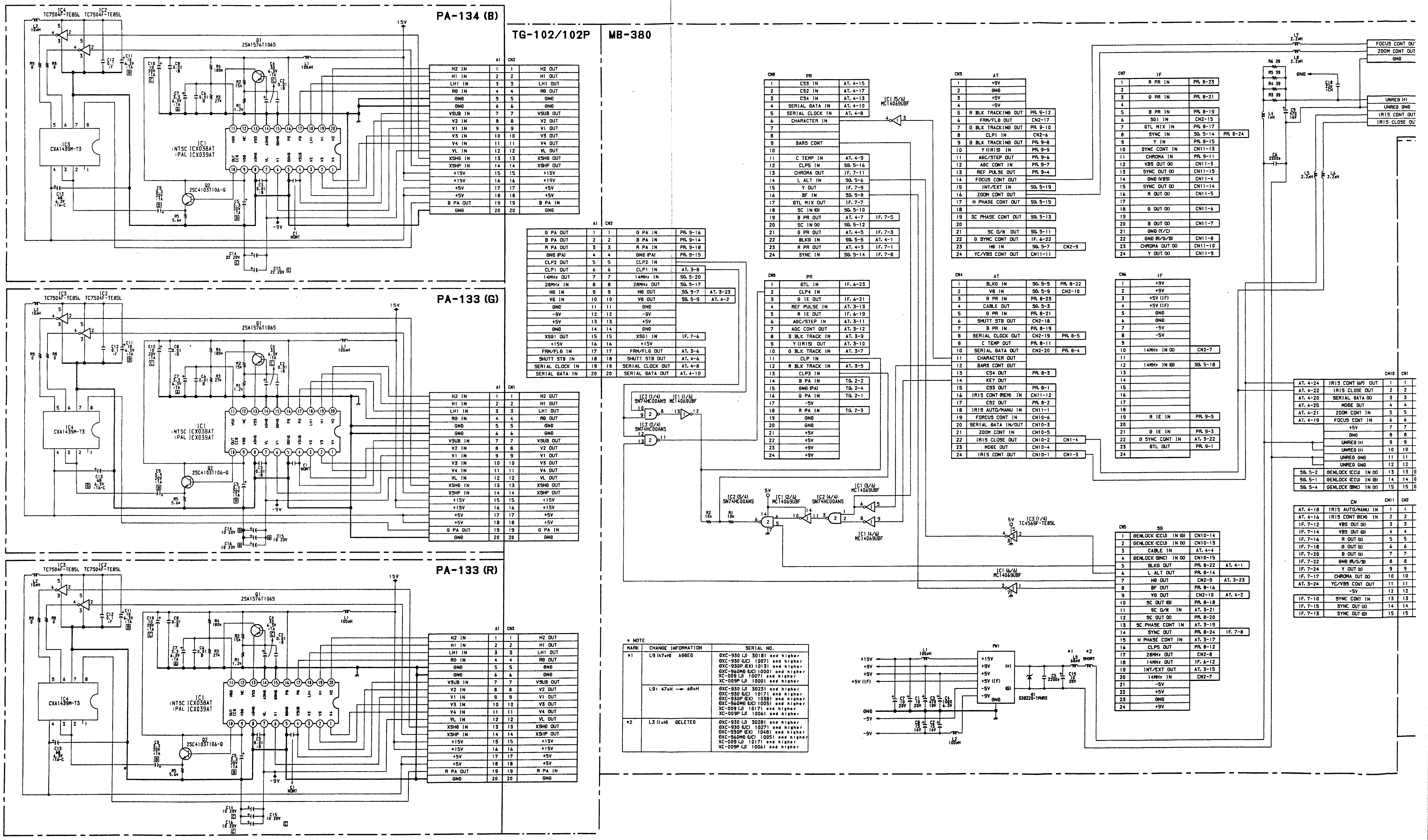
MB-380 (1-642-395-12)

CN1	C-1
CN2	B-1
CN3	C-2
CN4	C-3
CN5	B-2
CN6	A-2
CN7	A-3
CN8	A-2
CN9	A-3
CN10	C-3
CN11	B-3
CN12	C-1
D1	B-2
IC1	B-3
IC2	C-3
IC3	B-3
PW1	B-2

FRAME FRAME

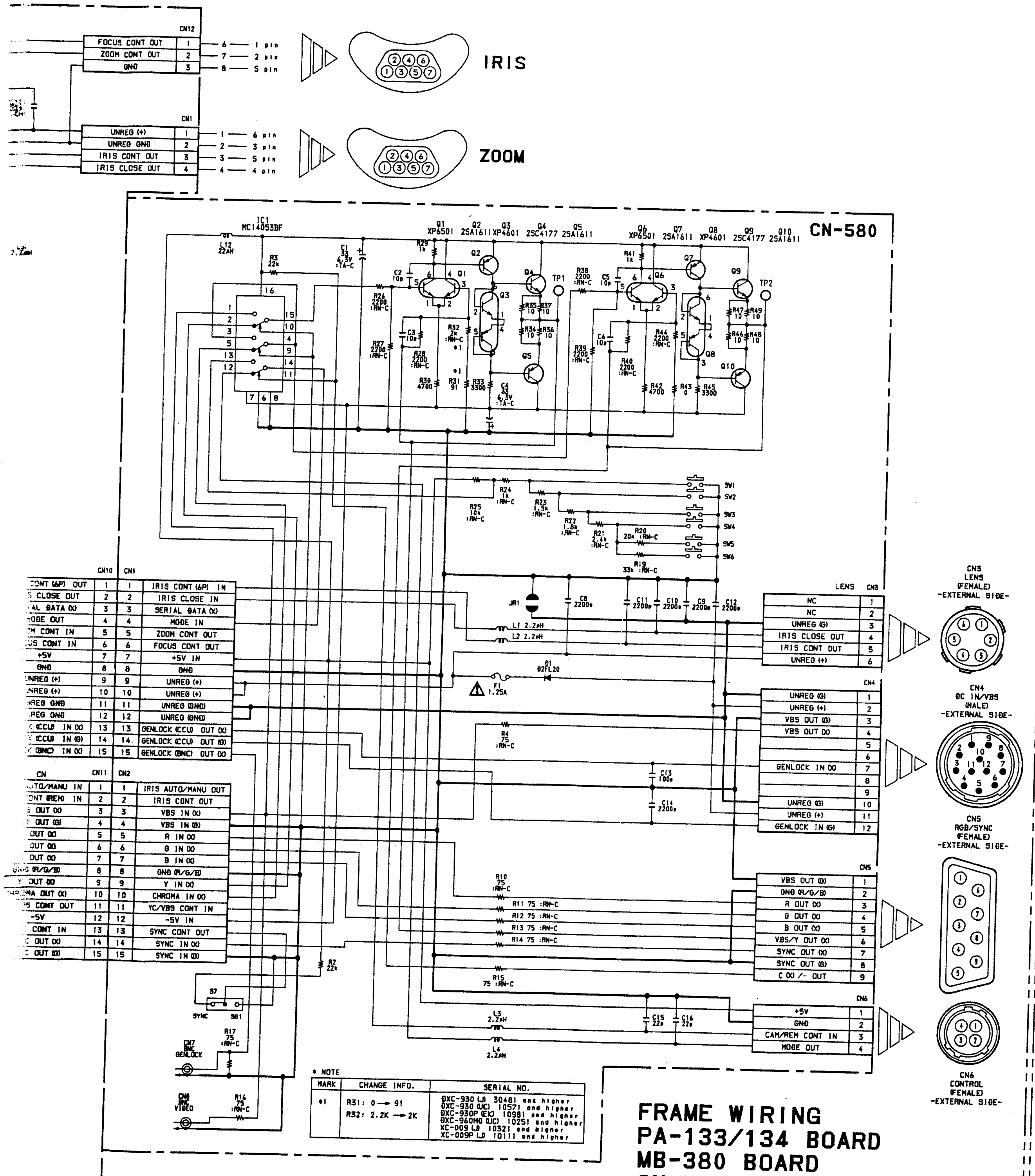
FRAME WIRING

PA-133/134 BOARD
MB-380 BOARD
CN-580 BOARD


PA-134 (B)
PA-133 (G)
PA-133 (R)
TG-102/102P
MB-380
IC4 TC7S04F-TE85L
IC2 TC7S04F-TE85L
IC3 CXA1439M-T3
IC1 :NTSC ICX038AT :PAL ICX039AT
Q1 2SA1576T106S
Q2 2SC4103T106-Q
15V
-9V
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN10
CN11
PR
AT
IF
SG
CN
PW1
IC1 (5/6) MC14069UBF
IC2 (1/4) SN74HC00ANS
IC2 (2/4) SN74HC00ANS
IC2 (3/4) SN74HC00ANS
IC2 (4/4) SN74HC00ANS
IC3 (1/4) TC4S69F-TE85L
FOCUS CONT OUT
ZOOM CONT OUT
UNREG (+)
UNREG GND
IRIS CONT OUT
IRIS CLOSE OUT
Q1 DTC114-TPNR3

* NOTE

MARK	CHANGE INFORMATION	SERIAL NO.
*1	L9 (47uH) ADDED	DXC-930 (J) 30181 and higher DXC-930 (UC) 10071 and higher DXC-930P (EK) 10131 and higher DXC-960MD (UC) 10001 and higher XC-009 (J) 10071 and higher XC-009P (J) 10001 and higher
	L9: 47uH → 68uH	DXC-930 (J) 30231 and higher DXC-930 (UC) 10171 and higher DXC-930P (EK) 10381 and higher DXC-960MD (UC) 10051 and higher XC-009 (J) 10171 and higher XC-009P (J) 10061 and higher
*2	L3 (1uH) DELETED	DXC-930 (J) 30281 and higher DXC-930 (UC) 10271 and higher DXC-930P (EK) 10481 and higher DXC-960MD (UC) 10051 and higher XC-009 (J) 10171 and higher XC-009P (J) 10061 and higher


CN12
FOCUS CONT OUT
ZOOM CONT OUT
GND
IRIS
CN11
UNREG (+)
UNREG GND
IRIS CONT OUT
IRIS CLOSE OUT
ZOOM
CN-580
IC1 MC14053BF
Q1 XP6501
Q2 2SA1611
Q3 XP4601
Q4 2SC4177
Q5 2SA1611
Q6 XP6501
Q7 2SA1611
Q8 XP4601
Q9 2SC4177
Q10 2SA1611
TP1
TP2
SW1
SW2
SW3
SW4
SW5
SW6
CN10
CN1
CN
CN11
CN2
LENS
CN3
CN4
CN5
CN6
CN3 LENS (FEMALE) -EXTERNAL SIDE-
CN4 GC IN/VBS (MALE) -EXTERNAL SIDE-
CN5 RGB/SYNC (FEMALE) -EXTERNAL SIDE-
CN6 CONTROL (FEMALE) -EXTERNAL SIDE-
CN7 BNC GENLOCK
CN8 BNC VIDEO
S7 SYNC
F1 1.25A
D1 02FL20
JR1

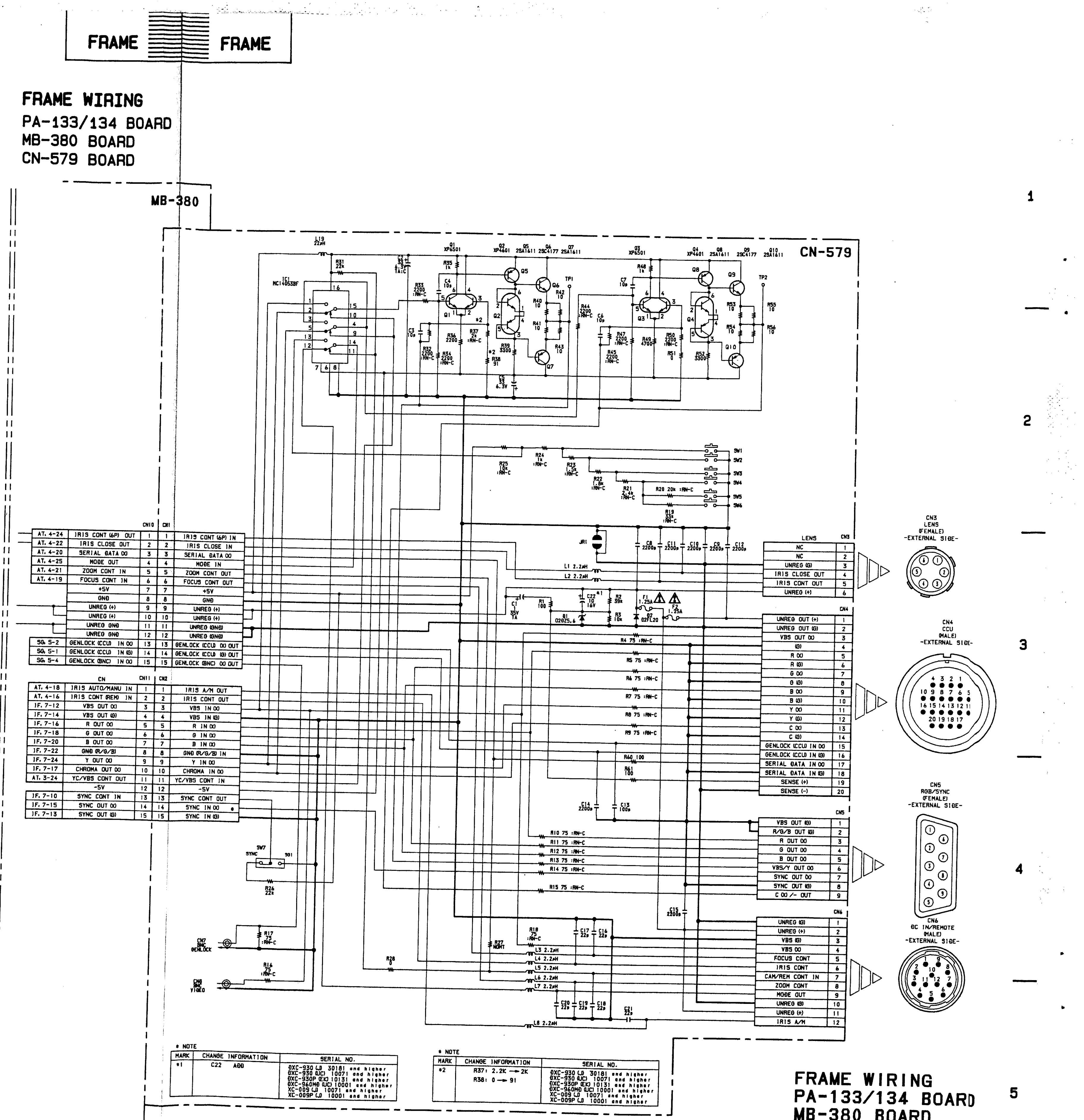
* NOTE

MARK	CHANGE INFO.	SERIAL NO.
*1	R31: 0 → 91 R32: 2.2K → 2K	DXC-930 (J) 30481 and higher DXC-930 (UC) 10571 and higher DXC-930P (EK) 10981 and higher DXC-960MD (UC) 10251 and higher XC-009 (J) 10321 and higher XC-009P (J) 10111 and higher

FRAME WIRING
PA-133/134 BOARD
MB-380 BOARD
CN-580 BOARD

XC-009 (J)
XC-009P (J)

A-¥DXC930-FRAME/M
B-¥DXC930-MB380/M
B-¥DXC930-PA134B/M
B-¥DXC930-PA133G/M
B-¥DXC930-PA133R/M
B-¥DXC930-TG/M
B-¥DXC930-CN579/M
B-¥DXC930-CN580/M


FRAME
FRAME
FRAME WIRING
PA-133/134 BOARD
MB-380 BOARD
CN-579 BOARD
MB-380
CN-579
IC1 MC14053BF
Q1 XP6501
Q2 XP4601
Q5 2SA1611
Q6 2SC4177
Q7 2SA1611
Q3 XP6501
Q4 XP4601
Q8 2SA1611
Q9 2SC4177
Q10 2SA1611
TP1
TP2
SW1
SW2
SW3
SW4
SW5
SW6
CN10
CN1
CN
CN11
CN2
CN3 LENS (FEMALE) -EXTERNAL SIDE-
CN4 CCU (MALE) -EXTERNAL SIDE-
CN5 RGB/SYNC (FEMALE) -EXTERNAL SIDE-
CN6 GC IN/REMOTE (MALE) -EXTERNAL SIDE-
CN7 BNC GENLOCK
CN8 BNC VIDEO
SW7 SYNC
F1 1.25A
F2 1.25A
D1 02DZ5.6
D2 02FL20
JR1
1
2
3
4
5

* NOTE

MARK	CHANGE INFORMATION	SERIAL NO.
*1	C22 ADD	DXC-930 (J) 30181 and higher DXC-930 (UC) 10071 and higher DXC-930P (EK) 10131 and higher DXC-960MD (UC) 10001 and higher XC-009 (J) 10071 and higher XC-009P (J) 10001 and higher

* NOTE

MARK	CHANGE INFORMATION	SERIAL NO.
*2	R37: 2.2K → 2K R38: 0 → 91	DXC-930 (J) 30181 and higher DXC-930 (UC) 10071 and higher DXC-930P (EK) 10131 and higher DXC-960MD (UC) 10001 and higher XC-009 (J) 10071 and higher XC-009P (J) 10001 and higher

FRAME WIRING
PA-133/134 BOARD
MB-380 BOARD
CN-579 BOARD

DXC-930 (UC)
DXC-930 (J)
DXC-930P (EK)
DXC-960MD (UC)

I J K L M N O P

SECTION D
SPARE PARTS

PARTS INFORMATION

1. Safety Related Component Warning

Components identified by shading marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service manual supplements published by Sony.

2. Replace Parts that are supplied from Sony Parts Center can sometimes have different shape and external appearance than what are actually used in equipment. This is due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts."

- This manual's exploded view and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present."
- Regarding engineering parts and diagrams changes in our engineering department, refer to Sony service bulletins and service manual supplements.

3. The parts maked with "S" in the SP column of the exploded views and electical spare parts list are nomally required for routine service work. Orders for parts marked with "O" will be processed, but allow for additional delivery time.

4. Item with no parts number and/or no description are not stocked because they are seldom required for routine service.

5. All capacitors are in micro farads unless otherwise specified.
All inductors are in micro henried unless otherwise specified.
All resistors are in ohms.

CAMERA MODULE

EXPLODED VIEW

No.	Part No.	SP	Description
1	A-7575-196-A	s	CCD UNIT-C930(N)(DXC-930) *1
2	A-7575-197-A	s	CCD UNIT-C930P(P)(DXC-930P) *2
3	A-7575-198-A	s	CCD UNIT-009(N)(XC-009) *3
4	A-7575-203-A	s	CCD UNIT-C930(N)(DXC-960MD) *4
5	A-7575-204-A	s	CCD UNIT-009P(P)(XC-009P) *5
6	A-8262-277-A	o	PANEL ASSY, REAR (XC-009/009P)
7	A-8262-282-A	o	PANEL ASSY, REAR (DXC-930/930P)
8	A-8262-486-A	o	PANEL ASSY, REAR (DXC-960MD)
9	A-8271-134-A	o	MOUNTED CIRCUIT BOARD, CN-580 (XC-009/009P)
10	A-8271-135-A	o	MOUNTED CIRCUIT BOARD, TG-102 (DXC-930/960MD, XC-009)
11	A-8271-137-A	o	MOUNTED CIRCUIT BOARD, TG-102P (DXC-930P, XC-009P)
12	A-8271-139-A	o	MOUNTED CIRCUIT BOARD, MB-380
13	A-8271-140-A	o	MOUNTED CIRCUIT BOARD, CN-579 (DXC-930/930P/960MD)
14	A-8271-141-A	o	MOUNTED CIRCUIT BOARD, SG-194 (DXC-930/960MD, XC-009)
15	A-8271-142-A	o	MOUNTED CIRCUIT BOARD, SG-194P (DXC-930P, XC-009P)
16	A-8271-143-A	o	MOUNTED CIRCUIT BOARD, IF-354 (DXC-930/960MD, XC-009)
17	A-8271-144-A	o	MOUNTED CIRCUIT BOARD, IF-354P (DXC-930P, XC-009P)
18	A-8271-145-A	o	MOUNTED CIRCUIT BOARD, AT-69
19	A-8271-146-A	o	MOUNTED CIRCUIT BOARD, PR-158 (DXC-930/960MD, XC-009)
20	A-8271-147-A	o	MOUNTED CIRCUIT BOARD, PR-158P (DXC-930P, XC-009P)
21	X-3166-543-3	o	CASE ASSY (COMPO), UPPER (XC-009/009P)
22	X-3166-544-2	o	CASE ASSY (COMPO), LOWER (XC-009/009P)
23	X-3166-546-3	o	CASE ASSY (INST), UPPER (DXC-930/930P)
24	X-3166-547-2	o	CASE ASSY (INST), LOWER (DXC-930/930P)
25	X-3166-548-1	o	SPRING ASSY, TG RADIATION
26	X-3166-701-2	o	CASE ASSY (MD), UPPER (DXC-960MD)
27	X-3166-702-1	o	CASE ASSY (MD), LOWER (DXC-960MD)
28	1-547-463-11	o	FILTER UNIT, OPTICAL
29	1-562-222-21	s	CONNECTOR, 6P FEMALE "LENS"
30	1-562-381-00	s	CONNECTOR, 12P MALE "DC IN/REMOTE" (DXC-930/930P/960MD) "DC IN/VBS" (XC-009/009P)
31	1-563-929-11	s	CONNECTOR, 4P FEMALE "CONTROL" (XC-009/009P)
32	1-571-787-11	s	SWITCH, TACTILE "MENU" "DISPLAY"
33	1-580-090-11	s	CONNECTOR, D-SUB 9P "RGB/SYNC"
34	1-580-724-21	s	CONNECTOR, BNC "VIDEO OUT" "GENLOCK"
35	1-691-629-11	s	CONNECTOR, 20P MALE "CCU" (DXC-930/930P/960MD)
36	1-949-642-11	o	HARNESS (ZOOM)
37	1-949-643-11	o	HARNESS (IRIS)
38	3-174-661-01	o	PANEL (COMPO), REAR (XC-009/009P)
39	3-174-668-01	o	RING, MOUNT
40	3-174-669-02	o	BRACKET, TG
41	3-174-670-01	s	RUBBER, HEAT ELECTRIC
42	3-174-672-01	o	SHEET, REAR
43	3-174-673-02	o	STAY
44	3-174-674-01	o	PANEL (INST), REAR (DXC-930/930P)
45	3-174-674-11	o	PANEL (INST), REAR (DXC-960MD)
46	3-176-677-01	o	PLATE, SHIELD (DXC-930/930P/960MD, XC-009P)
47	3-678-629-00	s	LEVER, MOUNT
48	3-699-144-01	s	CAP, MOUNT
49	3-737-536-01	o	LUG, GROUND, CONNECTOR
50	7-621-770-67	s	SCREW +B 2.6X6
51	7-621-772-18	s	SCREW +B 2X4
52	7-621-773-87	s	SCREW +B 2.6X10
53	7-621-773-95	s	SCREW +B 2.6X6 (XC-009/009P)
54	7-621-775-50	s	SCREW +B 2.6X10 (XC-009/009P)
55	7-627-450-98	s	SCREW, PRECISION +K 1.7X5 TYPE1
56	7-627-452-27	s	SCREW, +K 2X4
57	7-627-452-28	s	SCREW, PRECISION +K 2X4
58	7-627-552-58	s	SCREW, PRECISION +P 1.7X5

*1 CCD BLOCK NUMBER; V A xxxxx N

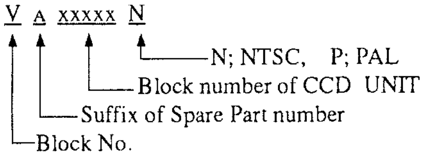
*2 CCD BLOCK NUMBER; V A xxxxx P

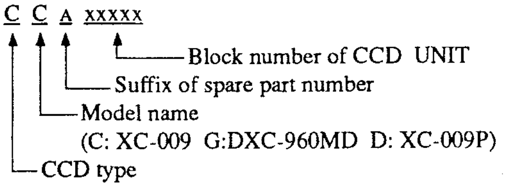
*3 CCD BLOCK NUMBER; CCA xxxxx

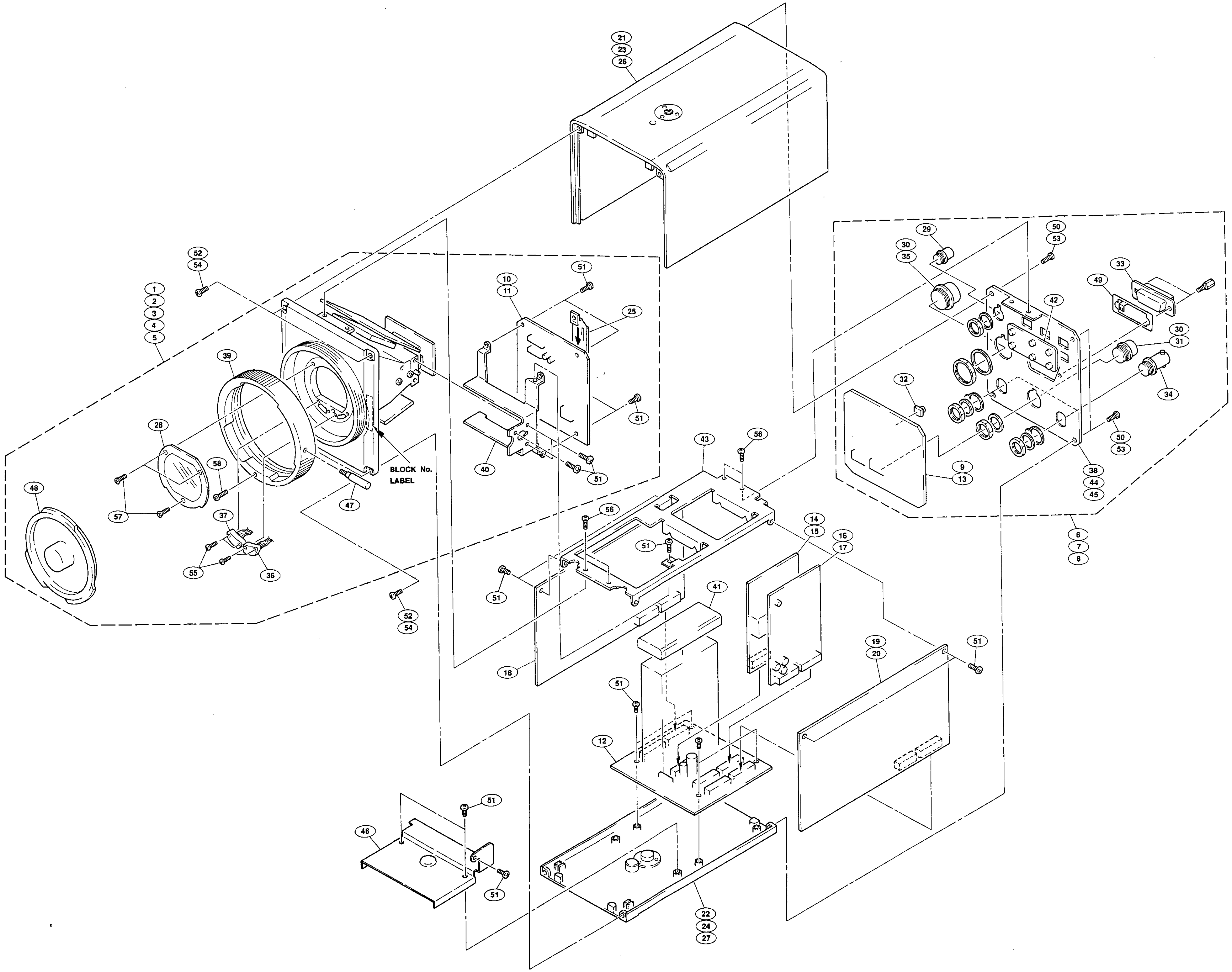
*4 CCD BLOCK NUMBER; CGA xxxxx

*5 CCD BLOCK NUMBER; CDA xxxxx

How to read the CCD BLOCK NUMBER



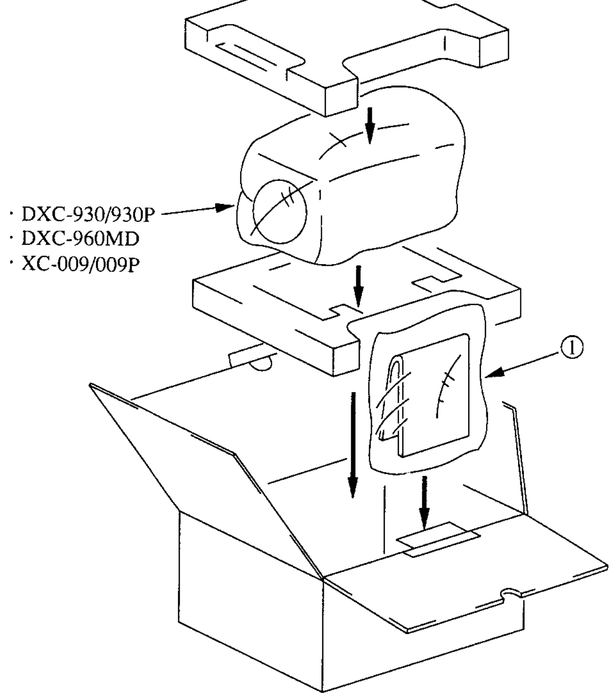

C C A xxxxx
Block number of CCD UNIT
Suffix of spare part number
Model name
(C: XC-009 G:DXC-960MD D: XC-009P)
CCD type


BLOCK No.
LABEL

PACKING

SUPPLIED ACCESSORIES

Ref. No. or Q'ty	Part No.	SP	Description
1	3-754-756-03	s	MANUAL, INSTRUCTION (XC-009/009P)
⚠	3-754-789-13	s	MANUAL, INSTRUCTION (DXC-930/930P)
⚠	3-755-152-12	s	MANUAL, INSTRUCTION (DXC-960MD)
	3-795-581-21	o	SAFEGUARD, IMPORTANT (DXC-930/960MD)



AT-69 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-145-A	o	MOUNTED CIRCUIT BOARD, AT-69
C1	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C2	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C3	1-135-179-21	s	TANTALUM 2.2uF 20% 16V
C4	1-135-208-11	s	TANTALUM 1uF 20% 10V
C5	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C6	1-135-208-11	s	TANTALUM 1uF 20% 10V
C7	1-126-391-11	s	ELECT, CHIP 47uF 20% 6.3V
C8	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C9	1-164-357-11	s	CERAMIC 1000PF 5% 50V
C10	1-135-208-11	s	TANTALUM 1uF 20% 10V
C11	1-135-179-21	s	TANTALUM 2.2uF 20% 16V
C12	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C13	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C14	1-164-357-11	s	CERAMIC 1000PF 5% 50V
C15	1-135-208-11	s	TANTALUM 1uF 20% 10V
C16	1-135-208-11	s	TANTALUM 1uF 20% 10V
C17	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C18	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C19	1-135-208-11	s	TANTALUM 1uF 20% 10V
C20	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C21	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C22	1-164-357-11	s	CERAMIC 1000PF 5% 50V
C23	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C24	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C25	1-135-208-11	s	TANTALUM 1uF 20% 10V
C26	1-164-357-11	s	CERAMIC 1000PF 5% 50V
C27	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C28	1-135-217-21	s	TANTALUM 15uF 20% 6.3
C29	1-135-190-21	s	TANTALUM 0.1uF 20% 20V
C31	1-126-391-11	s	ELECT, CHIP 47uF 20% 6.3V
C32	1-135-208-11	s	TANTALUM 1uF 20% 10V
C33	1-162-957-11	s	CERAMIC 220PF 5% 50V
C34	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C35	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C36	1-135-167-21	s	TANTALUM, CHIP 68uF 20% 6.3V
C37	1-135-208-11	s	TANTALUM 1uF 20% 10V
C38	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C39	1-164-360-11	s	CERAMIC 0.1uF 16V
C40	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C41	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C42	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C43	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C44	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C45	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C46	1-135-208-11	s	TANTALUM 1uF 20% 10V
C47	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C48	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C49	1-164-357-11	s	CERAMIC 1000PF 5% 50V
C50	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C51	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C52	1-135-164-21	s	TANTALUM, CHIP 22uF 20% 10V
C53	1-135-179-21	s	TANTALUM 2.2uF 20% 16V
C54	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
CN1	1-569-607-11	s	CONNECTOR, BOARD TO BOARD 24P
CN2	1-569-607-11	s	CONNECTOR, BOARD TO BOARD 24P
D1	8-719-017-08	s	DIODE 02DZ5.6-TPHR3

(AT-69 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D2	8-719-800-76	s	DIODE 1SS226
D3	8-719-800-76	s	DIODE 1SS226
D4	8-719-123-82	s	DIODE 1SS303
D5	8-719-123-82	s	DIODE 1SS303
IC1	8-759-906-54	s	IC TL064CNS
IC2	8-759-300-71	s	IC HD14053BFP
IC3	8-759-242-64	s	IC TC4W53F
IC5	8-759-009-06	s	IC MC14052BF
IC7	8-759-030-16	s	IC MC34182M
IC8	8-759-906-54	s	IC TL064CNS
IC9	8-759-987-41	s	IC SN74HC4066NS
IC10	8-759-011-65	s	IC MC74HC4053F
IC11	8-759-908-92	s	IC TL084CNS
IC12	8-759-635-27	s	IC M62352GP-E1
IC13	8-759-009-06	s	IC MC14052BF
IC14	8-759-009-05	s	IC MC14051BF
IC15	8-759-300-71	s	IC HD14053BFP
IC16	8-759-300-71	s	IC HD14053BFP
IC17	8-759-209-57	s	IC TC4S69F
IC18	8-759-209-97	s	IC TC4S81F
IC19	8-759-209-97	s	IC TC4S81F
IC20	8-759-078-51	s	IC HD63B05YOE64F
IC21	8-759-052-64	s	IC M6M80011AFP
IC22	8-759-112-72	s	IC UPD6142G-101
IC23	8-759-635-27	s	IC M62352GP-E1
IC24	8-759-030-16	s	IC MC34182M
IC25	8-759-946-03	s	IC S-8054ALR-LN-S
L1	1-412-030-11	s	INDUCTOR CHIP 22uH
L3	1-412-030-11	s	INDUCTOR CHIP 22uH
L4	1-412-030-11	s	INDUCTOR CHIP 22uH
L5	1-408-786-21	s	INDUCTOR CHIP 56uH
Q1	8-729-117-32	s	TRANSISTOR 2SC4177
Q2	8-729-427-83	s	TRANSISTOR XP6501
Q3	8-729-117-32	s	TRANSISTOR 2SC4177
Q4	8-729-427-80	s	TRANSISTOR XP6401
Q5	8-729-117-32	s	TRANSISTOR 2SC4177
Q6	8-729-117-32	s	TRANSISTOR 2SC4177
Q7	8-729-427-83	s	TRANSISTOR XP6501
Q8	8-729-117-32	s	TRANSISTOR 2SC4177
Q9	8-729-117-32	s	TRANSISTOR 2SC4177
Q10	8-729-427-83	s	TRANSISTOR XP6501
Q11	8-729-117-32	s	TRANSISTOR 2SC4177
Q12	8-729-117-32	s	TRANSISTOR 2SC4177
Q13	8-729-427-83	s	TRANSISTOR XP6501
Q14	8-729-117-32	s	TRANSISTOR 2SC4177
Q15	8-729-117-32	s	TRANSISTOR 2SC4177
Q16	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q17	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q18	8-729-117-32	s	TRANSISTOR 2SC4177
Q19	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q20	8-729-117-32	s	TRANSISTOR 2SC4177
Q21	8-729-427-83	s	TRANSISTOR XP6501
Q22	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q23	8-729-117-32	s	TRANSISTOR 2SC4177
Q24	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q25	8-729-117-32	s	TRANSISTOR 2SC4177
R1	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R2	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W

(AT-69 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R3	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R4	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R5	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R6	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R7	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R8	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R9	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R10	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R11	1-216-819-11	s	METAL, CHIP 680 5% 1/16W
R12	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R13	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R15	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R16	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R17	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R18	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R19	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R20	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R21	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R22	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R23	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R24	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R25	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R26	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R27	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R29	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R30	1-218-716-11	s	METAL 10K 0.50% 1/16W
R32	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R33	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R34	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R35	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R37	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R38	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R39	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R40	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R41	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R42	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R44	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R45	1-216-864-11	s	METAL, CHIP 0-OHM
R46	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R48	1-218-716-11	s	METAL 10K 0.50% 1/16W
R49	1-218-724-11	s	METAL 22K 0.50% 1/16W
R50	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R51	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R52	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R53	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R54	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R55	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R57	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R58	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R59	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R60	1-218-724-11	s	METAL 22K 0.50% 1/16W
R61	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R62	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R63	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R65	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R66	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R67	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R68	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R69	1-218-716-11	s	METAL 10K 0.50% 1/16W

(AT-69 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R70	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R71	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R72	1-216-801-11	s	METAL 22 0.50% 1/16W
R74	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R75	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R76	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R77	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R78	1-218-725-11	s	METAL 24K 0.50% 1/16W
R79	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R80	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R82	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R84	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R85	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R86	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R87	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R88	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R89	1-218-883-11	s	METAL, CHIP 33K 0.50% 1/16W
R90	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R92	1-218-740-11	s	METAL 100K 0.50% 1/16W
R93	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R94	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R95	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R96	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R97	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R98	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R99	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R100	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R101	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R102	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R103	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R104	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R105	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R106	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R107	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R108	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R109	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R110	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R114	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R115	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R116	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R117	1-216-842-11	s	METAL, CHIP 56K 5% 1/16W
R118	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R119	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R120	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R121	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R122	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R123	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R124	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R125	1-216-842-11	s	METAL, CHIP 56K 5% 1/16W
R126	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R127	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R128	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R129	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R130	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R131	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R132	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R133	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R134	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R135	1-216-809-11	s	METAL, CHIP 100 5% 1/16W

(AT-69 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R136	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R137	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R138	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R139	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R140	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R141	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R142	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R143	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R145	1-216-864-11	s	METAL, CHIP 0-OHM
R146	1-216-864-11	s	METAL, CHIP 0-OHM
R147	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
RB1	1-231-387-00	s	COMPOSITION CIRCUIT BLOCK
SW1	1-571-120-11	s	SWITCH, SLIDE
SW2	1-571-249-11	s	SWITCH, SLIDE
X1	1-567-192-11	s	RESONATOR, CERAMIC 4.00MHz

CN-579 BOARD (For DXC-930/930P/960MD)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-140-A	o	MOUNTED CIRCUIT BOARD, CN-579 (DXC-930/930P/960MD)
C1	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C2	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C3	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C4	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C5	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C6	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C7	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C8	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C9	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C10	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C11	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C12	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C13	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C14	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C15	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C16	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C17	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C18	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C19	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C20	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C21	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C22	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
CN1	1-566-531-11	s	CONNECTOR, FPC (ZIF) 15P
CN2	1-566-531-11	s	CONNECTOR, FPC (ZIF) 15P
D1	8-719-017-08	s	DIODE 02DZ5.6-TPHR3
D2	8-719-510-30	s	DIODE D2FL20
F1 ⚠	1-576-212-21	s	FUSE, CHIP
F2 ⚠	1-576-212-21	s	FUSE, CHIP
IC1	8-759-300-71	s	IC HD14053BFP
L1	1-410-997-31	s	INDUCTOR CHIP 2.2uH
L2	1-410-997-31	s	INDUCTOR CHIP 2.2uH
L3	1-410-997-31	s	INDUCTOR CHIP 2.2uH
L4	1-410-997-31	s	INDUCTOR CHIP 2.2uH
L5	1-410-997-31	s	INDUCTOR CHIP 2.2uH
L6	1-410-997-31	s	INDUCTOR CHIP 2.2uH
L7	1-410-997-31	s	INDUCTOR CHIP 2.2uH
L8	1-410-997-31	s	INDUCTOR CHIP 2.2uH
L19	1-408-781-00	s	INDUCTOR CHIP 22uH
Q1	8-729-427-83	s	TRANSISTOR XP6501
Q2	8-729-427-74	s	TRANSISTOR XP4601
Q3	8-729-427-83	s	TRANSISTOR XP6501
Q4	8-729-427-74	s	TRANSISTOR XP4601
Q5	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q6	8-729-117-32	s	TRANSISTOR 2SC4177
Q7	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q8	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q9	8-729-117-32	s	TRANSISTOR 2SC4177
Q10	8-729-117-16	s	TRANSISTOR 2SA1611-M6
R1	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R2	1-216-840-11	s	METAL, CHIP 39K 5% 1/16W
R3	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R4	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R5	1-218-285-11	s	METAL, CHIP 75 5% 1/16W

(CN-579 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R6	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R7	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R8	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R9	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R10	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R11	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R12	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R13	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R14	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R15	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R16	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R17	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R18	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R19	1-218-883-11	s	METAL, CHIP 33K 0.50% 1/16W
R20	1-218-723-11	s	METAL 20K 0.50% 1/16W
R21	1-218-701-11	s	METAL 2.4K 0.50% 1/16W
R22	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R23	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R24	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R25	1-218-716-11	s	METAL 10K 0.50% 1/16W
R26	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R28	1-216-864-11	s	METAL, CHIP 0-OHM
R31	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R32	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R33	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R34	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R35	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R36	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R37	1-218-271-11	s	METAL 2K 0.50% 1/16W
R38	1-218-286-11	s	METAL, CHIP 91 0.50% 1/16W
R39	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R40	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R41	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R42	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R43	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R44	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R45	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R47	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R48	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R49	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R50	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R51	1-216-864-11	s	METAL, CHIP 0-OHM
R52	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R53	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R54	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R55	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R56	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R60	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R61	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
SW1	1-571-787-11	s	SWITCH, TACTILE
SW2	1-571-787-11	s	SWITCH, TACTILE
SW3	1-571-787-11	s	SWITCH, TACTILE
SW4	1-571-787-11	s	SWITCH, TACTILE
SW5	1-571-787-11	s	SWITCH, TACTILE
SW6	1-571-787-11	s	SWITCH, TACTILE
SW7	1-571-120-11	s	SWITCH, SLIDE

CN-580 BOARD (For XC-009/009P)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-134-A	o	MOUNTED CIRCUIT BOARD, CN-580 (XC-009/009P)
C1	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C2	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C3	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C4	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C5	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C6	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C8	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C9	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C10	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C11	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C12	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C13	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C14	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C15	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C16	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
CN1	1-566-531-11	s	CONNECTOR, FPC (ZIF) 15P
CN2	1-566-531-11	s	CONNECTOR, FPC (ZIF) 15P
D1	8-719-510-30	s	DIODE D2FL20
F1 ⚠	1-576-212-21	s	FUSE, CHIP
IC1	8-759-300-71	s	IC HD14053BFP
L1	1-410-997-31	s	INDUCTOR CHIP 2.2uH
L2	1-410-997-31	s	INDUCTOR CHIP 2.2uH
L3	1-410-997-31	s	INDUCTOR CHIP 2.2uH
L4	1-410-997-31	s	INDUCTOR CHIP 2.2uH
L12	1-408-781-00	s	INDUCTOR CHIP 22uH
Q1	8-729-427-83	s	TRANSISTOR XP6501
Q2	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q3	8-729-427-74	s	TRANSISTOR XP4601
Q4	8-729-117-32	s	TRANSISTOR 2SC4177
Q5	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q6	8-729-427-83	s	TRANSISTOR XP6501
Q7	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q8	8-729-427-74	s	TRANSISTOR XP4601
Q9	8-729-117-32	s	TRANSISTOR 2SC4177
Q10	8-729-117-16	s	TRANSISTOR 2SA1611-M6
R2	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R3	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R4	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R10	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R11	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R12	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R13	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R14	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R15	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R16	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R17	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R19	1-218-883-11	s	METAL, CHIP 33K 0.50% 1/16W
R20	1-218-723-11	s	METAL 20K 0.50% 1/16W
R21	1-218-701-11	s	METAL 2.4K 0.50% 1/16W
R22	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R23	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R24	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R25	1-218-716-11	s	METAL 10K 0.50% 1/16W
R26	1-218-700-11	s	METAL 2.2K 0.50% 1/16W

(CN-580 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R27	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R28	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R29	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R30	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R31	1-218-286-11	s	METAL, CHIP 91 0.50% 1/16W
R32	1-218-271-11	s	METAL 2K 0.50% 1/16W
R33	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R34	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R35	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R36	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R37	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R38	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R39	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R40	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R41	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R42	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R43	1-216-864-11	s	METAL, CHIP 0-OHM
R44	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R45	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R46	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R47	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R48	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R49	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
S1	1-571-787-11	s	SWITCH, TACTILE
S2	1-571-787-11	s	SWITCH, TACTILE
S3	1-571-787-11	s	SWITCH, TACTILE
S4	1-571-787-11	s	SWITCH, TACTILE
S5	1-571-787-11	s	SWITCH, TACTILE
S6	1-571-787-11	s	SWITCH, TACTILE
S7	1-571-120-11	s	SWITCH, SLIDE

IF-354 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-143-A	o	MOUNTED CIRCUIT BOARD, IF-354 (DXC-930/960MD,XC-009)
C1	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C2	1-164-156-11	s	CERAMIC 0.1uF 25V
C3	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C4	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C5	1-164-156-11	s	CERAMIC 0.1uF 25V
C6	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C7	1-162-928-11	s	CERAMIC 120PF 5% 50V
C8	1-162-928-11	s	CERAMIC 120PF 5% 50V
C9	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C10	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C11	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C12	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C13	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C15	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C16	1-164-156-11	s	CERAMIC 0.1uF 25V
C17	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C18	1-162-974-11	s	CERAMIC 0.01uF 50V
C19	1-162-974-11	s	CERAMIC 0.01uF 50V
C20	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C21	1-126-391-11	s	ELECT, CHIP 47uF 20% 6.3V
C22	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C23	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C24	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C25	1-162-917-11	s	CERAMIC, CHIP 15PF 5% 50V
C26	1-135-216-11	s	TANTALUM 10uF 20% 10V
C27	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C28	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C29	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C30	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C31	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C32	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C33	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C34	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C35	1-135-211-11	s	TANTALUM 6.8uF 20% 6.3
C36	1-135-211-11	s	TANTALUM 6.8uF 20% 6.3
C37	1-135-211-11	s	TANTALUM 6.8uF 20% 6.3
C38	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C39	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C40	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C41	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C42	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C43	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C44	1-135-181-21	s	TANTALUM, CHIP 4.7uF 10% 6.3V
C45	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C46	1-162-913-11	s	CERAMIC 8PF 0.5PF 50V
C47	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C48	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C49	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C50	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C51	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C52	1-162-918-11	s	CERAMIC, CHIP 18PF 5% 50V
C53	1-135-217-21	s	TANTALUM 15uF 20% 6.3
C54	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C55	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C56	1-162-916-11	s	CERAMIC, CHIP 12PF 5% 50V
C57	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V

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Ref. No. or Q'ty	Part No.	SP	Description
C58	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C59	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C60	1-162-910-11	s	CERAMIC 5PF 0.25PF 50V
C61	1-162-916-11	s	CERAMIC, CHIP 12PF 5% 50V
C62	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C63	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C64	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
CN1	1-569-607-11	s	CONNECTOR, BOARD TO BOARD 24P
CN2	1-569-607-11	s	CONNECTOR, BOARD TO BOARD 24P
IC1	8-752-332-69	s	IC CXL5504M
IC2	8-759-242-64	s	IC TC4W53F
IC3	8-759-209-97	s	IC TC4S81F
IC4	8-759-209-57	s	IC TC4S69F
L1	1-408-781-00	s	INDUCTOR CHIP 22uH
L2	1-408-781-00	s	INDUCTOR CHIP 22uH
L3	1-408-793-21	s	INDUCTOR CHIP 220uH
L4	1-410-719-31	s	INDUCTOR CHIP 150uH
L5	1-408-781-00	s	INDUCTOR CHIP 22uH
L6	1-408-797-11	s	INDUCTOR CHIP 470uH
L7	1-408-781-00	s	INDUCTOR CHIP 22uH
L8	1-408-793-21	s	INDUCTOR CHIP 220uH
L9	1-408-781-00	s	INDUCTOR CHIP 22uH
L10	1-408-781-00	s	INDUCTOR CHIP 22uH
L11	1-408-781-00	s	INDUCTOR CHIP 22uH
L12	1-408-781-00	s	INDUCTOR CHIP 22uH
L13	1-408-781-00	s	INDUCTOR CHIP 22uH
Q1	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q2	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q3	8-729-117-32	s	TRANSISTOR 2SC4177
Q4	8-729-117-32	s	TRANSISTOR 2SC4177
Q5	8-729-117-32	s	TRANSISTOR 2SC4177
Q6	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q7	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q8	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q9	8-729-117-32	s	TRANSISTOR 2SC4177
Q10	8-729-117-32	s	TRANSISTOR 2SC4177
Q11	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q12	8-729-117-32	s	TRANSISTOR 2SC4177
Q13	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q14	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q15	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q16	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q17	8-729-117-32	s	TRANSISTOR 2SC4177
Q18	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q19	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q20	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q21	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q22	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q23	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q24	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q25	8-729-117-32	s	TRANSISTOR 2SC4177
Q26	8-729-117-32	s	TRANSISTOR 2SC4177
Q27	8-729-117-32	s	TRANSISTOR 2SC4177
Q28	8-729-427-74	s	TRANSISTOR XP4601
Q29	8-729-427-74	s	TRANSISTOR XP4601
Q30	8-729-427-74	s	TRANSISTOR XP4601
Q31	8-729-427-83	s	TRANSISTOR XP6501

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Ref. No. or Q'ty	Part No.	SP	Description
Q32	8-729-427-83	s	TRANSISTOR XP6501
Q33	8-729-427-74	s	TRANSISTOR XP4601
Q34	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q35	8-729-427-74	s	TRANSISTOR XP4601
Q36	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q37	8-729-427-74	s	TRANSISTOR XP4601
Q38	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q39	8-729-427-83	s	TRANSISTOR XP6501
Q40	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q41	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q42	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q43	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q44	8-729-117-32	s	TRANSISTOR 2SC4177
Q45	8-729-117-32	s	TRANSISTOR 2SC4177
Q46	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q47	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q48	8-729-427-83	s	TRANSISTOR XP6501
Q49	8-729-427-74	s	TRANSISTOR XP4601
Q50	8-729-117-32	s	TRANSISTOR 2SC4177
Q51	8-729-117-32	s	TRANSISTOR 2SC4177
Q52	8-729-427-83	s	TRANSISTOR XP6501
Q53	8-729-427-74	s	TRANSISTOR XP4601
Q54	8-729-427-83	s	TRANSISTOR XP6501
Q55	8-729-427-74	s	TRANSISTOR XP4601
Q56	8-729-117-32	s	TRANSISTOR 2SC4177
Q57	8-729-427-74	s	TRANSISTOR XP4601
Q58	8-729-117-32	s	TRANSISTOR 2SC4177
Q59	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q60	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q61	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q62	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q63	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q64	8-729-427-83	s	TRANSISTOR XP6501
R1	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R2	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R3	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R4	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R5	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R8	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R9	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R10	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R11	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R12	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R13	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R14	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R15	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R16	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R17	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R18	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R19	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R20	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R21	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R22	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R23	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R24	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R25	1-216-818-11	s	METAL, CHIP 560 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R26	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R27	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R28	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R29	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R30	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R31	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R32	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R33	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R34	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R35	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R36	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R37	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R38	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R39	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R40	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R41	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R42	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R43	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R44	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R45	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R46	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R47	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R48	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R49	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R50	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R51	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R52	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R53	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R54	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R55	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R56	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R57	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R58	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R59	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R60	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R61	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R62	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R63	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R64	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R65	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R66	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R67	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R68	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R69	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R70	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R71	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R72	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R73	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R74	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R75	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R76	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R77	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R78	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R79	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R80	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R81	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R82	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R83	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R84	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R85	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R86	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R87	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R88	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R89	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R90	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R91	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R92	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R93	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R94	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R95	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R96	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R97	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R98	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R99	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R100	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R101	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R102	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R103	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R104	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R105	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R106	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R107	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R108	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R109	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R110	1-216-789-11	s	METAL 2.2 5% 1/16W
R111	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R112	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R113	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R114	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R115	1-218-688-11	s	METAL 680 0.50% 1/16W
R116	1-216-789-11	s	METAL 2.2 5% 1/16W
R117	1-216-864-11	s	METAL, CHIP 0-OHM
R118	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R119	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R120	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R121	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R122	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R123	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R124	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R125	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R126	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R127	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R128	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R129	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R130	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R131	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R132	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R133	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R134	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R135	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R136	1-216-864-11	s	METAL, CHIP 0-OHM
R137	1-216-864-11	s	METAL, CHIP 0-OHM
R138	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R139	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R140	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R141	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R142	1-216-864-11	s	METAL, CHIP 0-OHM
R143	1-216-809-11	s	METAL, CHIP 100 5% 1/16W

(IF-354 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R144	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R145	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R146	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R147	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R148	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R149	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R150	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R151	1-216-864-11	s	METAL, CHIP 0-OHM
R152	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R153	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R154	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R155	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R156	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R157	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R158	1-218-739-11	s	METAL, CHIP 91K 0.50% 1/16W
R159	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
RV1	1-238-089-11	s	RES, ADJ CERMET 4.7K
RV2	1-238-088-11	s	RES, ADJ, CERMET 2.2K
RV3	1-238-088-11	s	RES, ADJ, CERMET 2.2K
RV4	1-238-088-11	s	RES, ADJ, CERMET 2.2K
RV5	1-238-088-11	s	RES, ADJ, CERMET 2.2K
RV6	1-238-088-11	s	RES, ADJ, CERMET 2.2K
RV7	1-238-090-11	s	RES, ADJ CERMET 10K

IF-354P BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-144-A	o	MOUNTED CIRCUIT BOARD, IF-354P (DXC-930P,XC-009P)
C1	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C2	1-164-156-11	s	CERAMIC 0.1uF 25V
C3	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C4	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C5	1-164-156-11	s	CERAMIC 0.1uF 25V
C6	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C7	1-162-924-11	s	CERAMIC 56PF 5% 50V
C8	1-162-924-11	s	CERAMIC 56PF 5% 50V
C9	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C10	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C11	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C12	1-162-922-11	s	CERAMIC, CHIP 39PF 5% 50V
C13	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C15	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C16	1-164-156-11	s	CERAMIC 0.1uF 25V
C17	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C18	1-162-974-11	s	CERAMIC 0.01uF 50V
C19	1-162-974-11	s	CERAMIC 0.01uF 50V
C20	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C21	1-126-391-11	s	ELECT, CHIP 47uF 20% 6.3V
C22	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C23	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C24	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C25	1-162-917-11	s	CERAMIC, CHIP 15PF 5% 50V
C26	1-135-216-11	s	TANTALUM 10uF 20% 10V
C27	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C28	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C29	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C30	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C31	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C32	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C33	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C34	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C35	1-135-211-11	s	TANTALUM 6.8uF 20% 6.3
C36	1-135-211-11	s	TANTALUM 6.8uF 20% 6.3
C37	1-135-211-11	s	TANTALUM 6.8uF 20% 6.3
C38	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C39	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C40	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C41	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C42	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C43	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C44	1-135-181-21	s	TANTALUM, CHIP 4.7uF 10% 6.3V
C45	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C46	1-162-913-11	s	CERAMIC 8PF 0.5PF 50V
C47	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C48	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C49	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C50	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C51	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C52	1-162-918-11	s	CERAMIC, CHIP 18PF 5% 50V
C53	1-135-217-21	s	TANTALUM 15uF 20% 6.3
C54	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C55	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C56	1-162-916-11	s	CERAMIC, CHIP 12PF 5% 50V
C57	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V

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Ref. No. or Q'ty	Part No.	SP	Description
C58	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C59	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C60	1-162-910-11	s	CERAMIC 5PF 0.25PF 50V
C61	1-162-916-11	s	CERAMIC, CHIP 12PF 5% 50V
C62	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C63	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C64	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
CN1	1-569-607-11	s	CONNECTOR, BOARD TO BOARD 24P
CN2	1-569-607-11	s	CONNECTOR, BOARD TO BOARD 24P
IC1	8-752-332-69	s	IC CXL5504M
IC2	8-759-242-64	s	IC TC4W53F
IC3	8-759-209-97	s	IC TC4S81F
IC4	8-759-209-57	s	IC TC4S69F
L1	1-408-781-00	s	INDUCTOR CHIP 22uH
L2	1-408-781-00	s	INDUCTOR CHIP 22uH
L3	1-410-717-31	s	INDUCTOR, CHIP 100uH
L4	1-408-790-00	s	INDUCTOR CHIP 120uH
L5	1-408-781-00	s	INDUCTOR CHIP 22uH
L6	1-408-797-11	s	INDUCTOR CHIP 470uH
L7	1-408-781-00	s	INDUCTOR CHIP 22uH
L8	1-408-793-21	s	INDUCTOR CHIP 220uH
L9	1-408-781-00	s	INDUCTOR CHIP 22uH
L10	1-408-781-00	s	INDUCTOR CHIP 22uH
L11	1-408-781-00	s	INDUCTOR CHIP 22uH
L12	1-408-781-00	s	INDUCTOR CHIP 22uH
L13	1-408-781-00	s	INDUCTOR CHIP 22uH
Q1	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q2	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q3	8-729-117-32	s	TRANSISTOR 2SC4177
Q4	8-729-117-32	s	TRANSISTOR 2SC4177
Q5	8-729-117-32	s	TRANSISTOR 2SC4177
Q6	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q7	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q8	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q9	8-729-117-32	s	TRANSISTOR 2SC4177
Q10	8-729-117-32	s	TRANSISTOR 2SC4177
Q11	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q12	8-729-117-32	s	TRANSISTOR 2SC4177
Q13	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q14	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q15	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q16	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q17	8-729-117-32	s	TRANSISTOR 2SC4177
Q18	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q19	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q20	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q21	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q22	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q23	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q24	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q25	8-729-117-32	s	TRANSISTOR 2SC4177
Q26	8-729-117-32	s	TRANSISTOR 2SC4177
Q27	8-729-117-32	s	TRANSISTOR 2SC4177
Q28	8-729-427-74	s	TRANSISTOR XP4601
Q29	8-729-427-74	s	TRANSISTOR XP4601
Q30	8-729-427-74	s	TRANSISTOR XP4601
Q31	8-729-427-83	s	TRANSISTOR XP6501

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Ref. No. or Q'ty	Part No.	SP	Description
Q32	8-729-427-83	s	TRANSISTOR XP6501
Q33	8-729-427-74	s	TRANSISTOR XP4601
Q34	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q35	8-729-427-74	s	TRANSISTOR XP4601
Q36	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q37	8-729-427-74	s	TRANSISTOR XP4601
Q38	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q39	8-729-427-83	s	TRANSISTOR XP6501
Q40	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q41	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q42	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q43	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q44	8-729-117-32	s	TRANSISTOR 2SC4177
Q45	8-729-117-32	s	TRANSISTOR 2SC4177
Q46	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q47	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q48	8-729-427-83	s	TRANSISTOR XP6501
Q49	8-729-427-74	s	TRANSISTOR XP4601
Q50	8-729-117-32	s	TRANSISTOR 2SC4177
Q51	8-729-117-32	s	TRANSISTOR 2SC4177
Q52	8-729-427-83	s	TRANSISTOR XP6501
Q53	8-729-427-74	s	TRANSISTOR XP4601
Q54	8-729-427-83	s	TRANSISTOR XP6501
Q55	8-729-427-74	s	TRANSISTOR XP4601
Q56	8-729-117-32	s	TRANSISTOR 2SC4177
Q57	8-729-427-74	s	TRANSISTOR XP4601
Q58	8-729-117-32	s	TRANSISTOR 2SC4177
Q59	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q60	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q61	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q62	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q63	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q64	8-729-427-83	s	TRANSISTOR XP6501
R1	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R2	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R3	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R4	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R5	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R8	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R9	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R10	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R11	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R12	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R13	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R14	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R15	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R16	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R17	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R18	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R19	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R20	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R21	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R22	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R23	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R24	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R25	1-216-818-11	s	METAL, CHIP 560 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R26	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R27	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R28	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R29	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R30	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R31	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R32	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R33	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R34	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R35	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R36	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R37	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R38	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R39	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R40	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R41	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R42	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R43	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R44	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R45	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R46	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R47	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R48	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R49	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R50	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R51	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R52	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R53	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R54	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R55	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R56	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R57	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R58	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R59	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R60	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R61	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R62	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R63	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R64	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R65	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R66	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R67	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R68	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R69	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R70	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R71	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R72	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R73	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R74	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R75	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R76	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R77	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R78	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R79	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R80	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R81	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R82	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R83	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R84	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R85	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R86	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R87	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R88	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R89	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R90	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R91	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R92	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R93	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R94	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R95	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R96	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R97	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R98	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R99	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R100	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R101	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R102	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R103	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R104	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R105	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R106	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R107	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R108	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R109	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R110	1-216-789-11	s	METAL 2.2 5% 1/16W
R111	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R112	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R113	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R114	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R115	1-218-688-11	s	METAL 680 0.50% 1/16W
R116	1-216-789-11	s	METAL 2.2 5% 1/16W
R117	1-216-864-11	s	METAL, CHIP 0-OHM
R118	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R119	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R120	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R121	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R122	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R123	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R124	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R125	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R126	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R127	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R128	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R129	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R130	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R131	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R132	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R133	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R134	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R135	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R136	1-216-864-11	s	METAL, CHIP 0-OHM
R137	1-216-864-11	s	METAL, CHIP 0-OHM
R138	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R139	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R140	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R141	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R142	1-216-864-11	s	METAL, CHIP 0-OHM
R143	1-216-809-11	s	METAL, CHIP 100 5% 1/16W

(IF-354P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R144	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R145	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R146	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R147	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R148	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R149	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R150	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R151	1-216-864-11	s	METAL, CHIP 0-OHM
R152	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R153	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R154	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R155	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R156	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R157	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R158	1-218-739-11	s	METAL, CHIP 91K 0.50% 1/16W
R159	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
RV1	1-238-089-11	s	RES, ADJ CERMET 4.7K
RV2	1-238-088-11	s	RES, ADJ, CERMET 2.2K
RV3	1-238-088-11	s	RES, ADJ, CERMET 2.2K
RV4	1-238-088-11	s	RES, ADJ, CERMET 2.2K
RV5	1-238-088-11	s	RES, ADJ, CERMET 2.2K
RV6	1-238-088-11	s	RES, ADJ, CERMET 2.2K
RV7	1-238-090-11	s	RES, ADJ CERMET 10K

MB-380 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-139-A	o	MOUNTED CIRCUIT BOARD, MB-380
C1	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C2	1-135-160-21	s	TANTALUM, CHIP 15uF 10% 16V
C3	1-126-925-11	s	ELECT 470uF 20% 10V
C4	1-126-916-11	s	ELECT 1000uF 20% 6.3
C5	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C6	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C7	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C8	1-135-160-21	s	TANTALUM, CHIP 15uF 10% 16V
C9	1-126-935-11	s	ELECT 470uF 20% 16V
C10	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C15	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
CN1	1-565-151-11	o	PIN, CONNECTOR (ANGLE) 4P
CN2	1-691-630-21	o	CONNECTOR, FFC/FPC (ZIF) 20P
CN3	1-568-338-11	s	CONNECTOR, BOARD TO BOARD 24P
CN4	1-568-338-11	s	CONNECTOR, BOARD TO BOARD 24P
CN5	1-568-338-11	s	CONNECTOR, BOARD TO BOARD 24P
CN6	1-568-338-11	s	CONNECTOR, BOARD TO BOARD 24P
CN7	1-568-338-11	s	CONNECTOR, BOARD TO BOARD 24P
CN8	1-568-338-11	s	CONNECTOR, BOARD TO BOARD 24P
CN9	1-568-338-11	s	CONNECTOR, BOARD TO BOARD 24P
CN10	1-690-670-12	s	CABLE, FLAT (1.0MM) 15P
CN11	1-690-670-12	s	CABLE, FLAT (1.0MM) 15P
CN12	1-565-150-11	o	PIN, CONNECTOR (ANGLE) 3P
D1	8-719-017-34	s	DIODE 02DZ20-TPHR3
IC1	8-759-009-10	s	IC MC14069UBF
IC2	8-759-927-46	s	IC SN74HC00NS
IC3	8-759-209-57	s	IC TC4S69F
L1	1-412-032-11	s	INDUCTOR CHIP 100uH
L2	1-412-032-11	s	INDUCTOR CHIP 100uH
L4	1-412-026-11	s	INDUCTOR CHIP 1uH
L5	1-410-997-31	s	INDUCTOR CHIP 2.2uH
L6	1-410-997-31	s	INDUCTOR CHIP 2.2uH
L7	1-410-997-31	s	INDUCTOR CHIP 2.2uH
L8	1-410-997-31	s	INDUCTOR CHIP 2.2uH
L9	1-412-535-41	s	INDUCTOR 68UH
PW1	1-466-696-11	s	CONVERTER (DC-DC)
R1	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R2	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R3	1-216-804-11	s	METAL 39 5% 1/16W
R4	1-216-804-11	s	METAL 39 5% 1/16W
R5	1-216-804-11	s	METAL 39 5% 1/16W
R6	1-216-804-11	s	METAL 39 5% 1/16W

PA-133 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-136-A	o	MOUNTED CIRCUIT BOARD, PA-133
C2	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C3	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C4	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C5	1-135-154-21	s	TANTALUM, CHIP 3.3uF 20% 20V
C6	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C7	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C8	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C9	1-135-154-21	s	TANTALUM, CHIP 3.3uF 20% 20V
C10	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C11	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-135-167-21	s	TANTALUM, CHIP 68uF 20% 6.3V
C14	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C15	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C16	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
IC2	8-759-031-84	s	IC SC7S04F
IC3	8-759-031-84	s	IC SC7S04F
IC4	8-752-052-72	s	IC CXA1439M
L1	1-412-032-11	s	INDUCTOR CHIP 100uH
L2	1-412-029-11	s	INDUCTOR CHIP 10uH
Q1	8-729-905-24	s	TRANSISTOR 2SA1576S
Q2	8-729-926-19	s	TRANSISTOR 2SC4103-Q
R1	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R2	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R3	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R4	1-216-848-11	s	METAL, CHIP 180K 5% 1/16W
R5	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R8	1-216-864-11	s	METAL, CHIP 0-OHM
R9	1-216-864-11	s	METAL, CHIP 0-OHM

PA-134 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-138-A	o	MOUNTED CIRCUIT BOARD, PA-134
C2	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C3	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C4	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C5	1-135-154-21	s	TANTALUM, CHIP 3.3uF 20% 20V
C6	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C7	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C8	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C9	1-135-154-21	s	TANTALUM, CHIP 3.3uF 20% 20V
C10	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C11	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-135-167-21	s	TANTALUM, CHIP 68uF 20% 6.3V
C14	1-135-164-21	s	TANTALUM, CHIP 22uF 20% 10V
C15	1-135-164-21	s	TANTALUM, CHIP 22uF 20% 10V
IC2	8-759-031-84	s	IC SC7S04F
IC3	8-752-052-72	s	IC CXA1439M
IC4	8-759-031-84	s	IC SC7S04F
L1	1-412-032-11	s	INDUCTOR CHIP 100uH
L2	1-412-029-11	s	INDUCTOR CHIP 10uH
Q1	8-729-905-24	s	TRANSISTOR 2SA1576S
Q2	8-729-926-19	s	TRANSISTOR 2SC4103-Q
R1	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R2	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R3	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R4	1-216-848-11	s	METAL, CHIP 180K 5% 1/16W
R5	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R8	1-216-864-11	s	METAL, CHIP 0-OHM
R9	1-216-864-11	s	METAL, CHIP 0-OHM

PR-158 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-146-A	o	MOUNTED CIRCUIT BOARD, PR-158 (DXC-930/960MD,XC-009)
C1	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C2	1-162-910-11	s	CERAMIC 5PF 0.25PF 50V
C3	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C4	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C5	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C6	1-126-391-11	s	ELECT, CHIP 47uF 20% 6.3V
C7	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C8	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C9	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C10	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C11	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C14	1-135-167-21	s	TANTALUM, CHIP 68uF 20% 6.3V
C15	1-126-391-11	s	ELECT, CHIP 47uF 20% 6.3V
C16	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C17	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C18	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C19	1-164-156-11	s	CERAMIC 0.1uF 25V
C20	1-164-156-11	s	CERAMIC 0.1uF 25V
C21	1-162-910-11	s	CERAMIC 5PF 0.25PF 50V
C22	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C27	1-164-156-11	s	CERAMIC 0.1uF 25V
C28	1-164-156-11	s	CERAMIC 0.1uF 25V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C32	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C33	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C34	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C35	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C36	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C37	1-164-156-11	s	CERAMIC 0.1uF 25V
C38	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C39	1-135-167-21	s	TANTALUM, CHIP 68uF 20% 6.3V
C40	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C41	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C42	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C43	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C44	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C45	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 20V
C46	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C47	1-135-167-21	s	TANTALUM, CHIP 68uF 20% 6.3V
C48	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C49	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C50	1-162-910-11	s	CERAMIC 5PF 0.25PF 50V
C51	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C52	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C53	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C54	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C55	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C56	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V

(PR-158 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C57	1-164-156-11	s	CERAMIC 0.1uF 25V
C58	1-164-156-11	s	CERAMIC 0.1uF 25V
C59	1-164-156-11	s	CERAMIC 0.1uF 25V
C60	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C61	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C62	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 20V
C63	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 20V
C64	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 20V
C65	1-164-156-11	s	CERAMIC 0.1uF 25V
C66	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C67	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C68	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C69	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C70	1-162-949-11	s	CERAMIC 47PF 5% 50V
C71	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C72	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C73	1-164-156-11	s	CERAMIC 0.1uF 25V
C74	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C75	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C76	1-164-156-11	s	CERAMIC 0.1uF 25V
C77	1-135-167-21	s	TANTALUM, CHIP 68uF 20% 6.3V
C78	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 20V
C79	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C80	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C81	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C82	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C83	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C84	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C85	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C86	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C87	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C88	1-164-156-11	s	CERAMIC 0.1uF 25V
C89	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C90	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C91	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C92	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C93	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C94	1-135-208-11	s	TANTALUM 1uF 20% 10V
C95	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C97	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C98	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C99	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C100	1-164-156-11	s	CERAMIC 0.1uF 25V
C101	1-164-156-11	s	CERAMIC 0.1uF 25V
C102	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C103	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C104	1-164-156-11	s	CERAMIC 0.1uF 25V
C105	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C106	1-135-152-21	s	TANTALUM, CHIP 1.5uF 10% 25V
C107	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C108	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C109	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C110	1-162-925-11	s	CERAMIC, CHIP 68PF 5% 50V
C111	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C112	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C113	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C114	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C115	1-162-962-11	s	CERAMIC 470PF 10% 50V
C116	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V

(PR-158 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C117	1-126-391-11	s	ELECT, CHIP 47uF 20% 6.3V
C118	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C119	1-164-156-11	s	CERAMIC 0.1uF 25V
C120	1-162-918-11	s	CERAMIC, CHIP 18PF 5% 50V
C121	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C122	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C123	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C124	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C125	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C126	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C127	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C128	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
CN1	1-569-607-11	s	CONNECTOR, BOARD TO BOARD 24P
CN2	1-569-607-11	s	CONNECTOR, BOARD TO BOARD 24P
D1	8-719-123-85	s	DIODE 1SS304
D2	8-719-123-85	s	DIODE 1SS304
DL1	1-415-730-21	s	DELAY LINE, LC 100nS
DL2	1-415-730-21	s	DELAY LINE, LC 100nS
DL3	1-415-730-21	s	DELAY LINE, LC 100nS
DL4	1-415-864-21	s	DELAY LINE, LC
DL5	1-415-763-21	s	DELAY LINE, LC
DL6	1-415-730-21	s	DELAY LINE, LC 100nS
DL7	1-415-730-21	s	DELAY LINE, LC 100nS
DL8	1-415-730-21	s	DELAY LINE, LC 100nS
FL1	1-409-496-21	s	FILTER, LC TRAP
FL2	1-409-496-21	s	FILTER, LC TRAP
FL3	1-409-496-21	s	FILTER, LC TRAP
FL4	1-239-212-21	s	FILTER, BAND PASS
IC1	8-759-030-16	s	IC MC34182M
IC2	8-759-300-71	s	IC HD14053BFP
IC3	8-759-234-77	s	IC TC4S66F
IC4	8-759-234-77	s	IC TC4S66F
IC5	8-759-209-57	s	IC TC4S69F
IC6	8-759-030-16	s	IC MC34182M
IC7	8-759-234-77	s	IC TC4S66F
IC8	8-759-052-67	s	IC UPC2372GF-3B9
IC9	8-759-030-16	s	IC MC34182M
IC10	8-759-927-46	s	IC SN74HC00NS
IC11	8-759-926-37	s	IC SN74HC193ANS
IC12	8-759-925-83	s	IC SN74HC27NS
IC13	8-759-635-27	s	IC M62352GP-E1
IC14	8-759-906-59	s	IC CX22017
IC15	8-759-209-57	s	IC TC4S69F
IC16	8-759-635-27	s	IC M62352GP-E1
IC17	8-752-056-59	s	IC CXA1592R
IC18	8-759-635-27	s	IC M62352GP-E1
L1	1-412-030-11	s	INDUCTOR CHIP 22uH
L2	1-412-030-11	s	INDUCTOR CHIP 22uH
L3	1-412-030-11	s	INDUCTOR CHIP 22uH
L4	1-412-030-11	s	INDUCTOR CHIP 22uH
L5	1-412-032-11	s	INDUCTOR CHIP 100uH
L6	1-412-032-11	s	INDUCTOR CHIP 100uH
L7	1-412-032-11	s	INDUCTOR CHIP 100uH
L8	1-412-030-11	s	INDUCTOR CHIP 22uH
L12	1-412-034-11	s	INDUCTOR CHIP 330uH
L13	1-412-034-11	s	INDUCTOR CHIP 330uH

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Ref. No. or Q'ty	Part No.	SP	Description
L14	1-412-032-11	s	INDUCTOR CHIP 100uH
LV1	1-414-071-21	s	COIL, VAR
Q1	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q2	8-729-427-83	s	TRANSISTOR XP6501
Q3	8-729-117-32	s	TRANSISTOR 2SC4177
Q4	8-729-117-32	s	TRANSISTOR 2SC4177
Q5	8-729-117-32	s	TRANSISTOR 2SC4177
Q6	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q7	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q8	8-729-118-58	s	TRANSISTOR 2SK852-X4
Q9	8-729-117-32	s	TRANSISTOR 2SC4177
Q10	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q11	8-729-117-32	s	TRANSISTOR 2SC4177
Q12	8-729-117-32	s	TRANSISTOR 2SC4177
Q13	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q14	8-729-117-32	s	TRANSISTOR 2SC4177
Q15	8-729-117-32	s	TRANSISTOR 2SC4177
Q16	8-729-117-32	s	TRANSISTOR 2SC4177
Q17	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q18	8-729-427-83	s	TRANSISTOR XP6501
Q19	8-729-117-32	s	TRANSISTOR 2SC4177
Q20	8-729-117-32	s	TRANSISTOR 2SC4177
Q21	8-729-117-32	s	TRANSISTOR 2SC4177
Q22	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q23	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q24	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q25	8-729-117-32	s	TRANSISTOR 2SC4177
Q26	8-729-427-83	s	TRANSISTOR XP6501
Q27	8-729-117-32	s	TRANSISTOR 2SC4177
Q28	8-729-117-32	s	TRANSISTOR 2SC4177
Q29	8-729-117-32	s	TRANSISTOR 2SC4177
Q30	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q31	8-729-117-32	s	TRANSISTOR 2SC4177
Q32	8-729-117-32	s	TRANSISTOR 2SC4177
Q33	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q34	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q35	8-729-427-83	s	TRANSISTOR XP6501
Q36	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q37	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q38	8-729-118-58	s	TRANSISTOR 2SK852-X4
Q39	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q40	8-729-117-32	s	TRANSISTOR 2SC4177
Q41	8-729-117-32	s	TRANSISTOR 2SC4177
Q42	8-729-427-74	s	TRANSISTOR XP4601
Q43	8-729-117-32	s	TRANSISTOR 2SC4177
Q44	8-729-427-83	s	TRANSISTOR XP6501
Q45	8-729-117-32	s	TRANSISTOR 2SC4177
Q46	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q47	8-729-117-32	s	TRANSISTOR 2SC4177
Q48	8-729-117-32	s	TRANSISTOR 2SC4177
Q49	8-729-427-83	s	TRANSISTOR XP6501
Q50	8-729-429-98	s	TRANSISTOR XP1401
Q51	8-729-117-32	s	TRANSISTOR 2SC4177
Q52	8-729-117-32	s	TRANSISTOR 2SC4177
Q53	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q54	8-729-117-32	s	TRANSISTOR 2SC4177
Q55	8-729-117-32	s	TRANSISTOR 2SC4177

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Ref. No. or Q'ty	Part No.	SP	Description
Q56	8-729-427-83	s	TRANSISTOR XP6501
Q57	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q58	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q59	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q60	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q61	8-729-117-32	s	TRANSISTOR 2SC4177
Q62	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q63	8-729-117-32	s	TRANSISTOR 2SC4177
Q64	8-729-427-83	s	TRANSISTOR XP6501
Q65	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q66	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q67	8-729-117-32	s	TRANSISTOR 2SC4177
Q68	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q69	8-729-117-32	s	TRANSISTOR 2SC4177
Q70	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q71	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q72	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q73	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q74	8-729-117-32	s	TRANSISTOR 2SC4177
Q75	8-729-117-32	s	TRANSISTOR 2SC4177
Q76	8-729-117-32	s	TRANSISTOR 2SC4177
Q77	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q78	8-729-117-32	s	TRANSISTOR 2SC4177
Q79	8-729-117-32	s	TRANSISTOR 2SC4177
Q80	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q81	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q82	8-729-117-32	s	TRANSISTOR 2SC4177
Q83	8-729-117-32	s	TRANSISTOR 2SC4177
Q84	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q85	8-729-117-32	s	TRANSISTOR 2SC4177
Q87	8-729-117-32	s	TRANSISTOR 2SC4177
Q89	8-729-117-32	s	TRANSISTOR 2SC4177
Q90	8-729-117-32	s	TRANSISTOR 2SC4177
R1	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R2	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R3	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R4	1-218-330-11	s	METAL 11K 0.50% 1/16W
R5	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R6	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R7	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R8	1-220-373-11	s	METAL 620 0.50% 1/16W
R9	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R10	1-218-457-11	s	METAL 910 0.50% 1/16W
R11	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R12	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R13	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R14	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R15	1-216-840-11	s	METAL, CHIP 39K 5% 1/16W
R16	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R17	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R18	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R19	1-216-850-11	s	METAL 270K 5% 1/16W
R20	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R21	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R22	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R23	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R24	1-218-724-11	s	METAL 22K 0.50% 1/16W
R25	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R26	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R27	1-218-484-11	s	METAL 750 0.50% 1/16W
R28	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R29	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R30	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R31	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R32	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R33	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R34	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R35	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R36	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R37	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R38	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R39	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R40	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R41	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R42	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R43	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R44	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R45	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R46	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R47	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R48	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R49	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R50	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R51	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R52	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R53	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R54	1-216-840-11	s	METAL, CHIP 39K 5% 1/16W
R55	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R56	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R57	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R58	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R59	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R60	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R62	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R63	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R64	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R65	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R66	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R67	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R68	1-218-484-11	s	METAL 750 0.50% 1/16W
R69	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R70	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R71	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R72	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R73	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R74	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R75	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R76	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R77	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R78	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R79	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R80	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R81	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R82	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R83	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R84	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R85	1-216-817-11	s	METAL, CHIP 470 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R86	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R87	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R88	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R89	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R90	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R91	1-216-840-11	s	METAL, CHIP 39K 5% 1/16W
R92	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R93	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R94	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R95	1-216-850-11	s	METAL 270K 5% 1/16W
R96	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R97	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R98	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R99	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R100	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R101	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R102	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R103	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R104	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R105	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R106	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R107	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R108	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R109	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R110	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R111	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R112	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R113	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R114	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R115	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R116	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R117	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R118	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R119	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R120	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R121	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R122	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R123	1-218-484-11	s	METAL 750 0.50% 1/16W
R124	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R125	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R126	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R127	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R128	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R129	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R130	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R131	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R132	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R133	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R134	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R135	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R136	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R137	1-218-253-11	s	METAL, CHIP 2.32K 0.5% 1/10W
R138	1-218-255-11	s	METAL, CHIP 2.67K 0.5% 1/10W
R139	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R140	1-216-795-11	s	METAL 6.8K 0.50% 1/16W
R141	1-216-865-11	s	METAL 3K 0.50% 1/16W
R142	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R151	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R153	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R154	1-216-864-11	s	METAL, CHIP 0-OHM
R155	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R156	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R157	1-218-727-11	s	METAL 30K 0.50% 1/16W
R158	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R159	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R160	1-218-727-11	s	METAL 30K 0.50% 1/16W
R161	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R162	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R163	1-218-727-11	s	METAL 30K 0.50% 1/16W
R164	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R165	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R168	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R169	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R170	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R171	1-218-256-11	s	METAL, CHIP 3.32K 0.5% 1/10W
R172	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R173	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R174	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R175	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R176	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R177	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R178	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R179	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R180	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R181	1-218-271-11	s	METAL 2K 0.50% 1/16W
R182	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R183	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R184	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R185	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R186	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R187	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R188	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R189	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R190	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R191	1-218-271-11	s	METAL 2K 0.50% 1/16W
R192	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R193	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R194	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R195	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R196	1-218-252-11	s	METAL, CHIP 2.26K 0.5% 1/10W
R197	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R198	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R199	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R200	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R201	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R202	1-218-289-11	s	METAL 510 5% 1/16W
R203	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R204	1-218-289-11	s	METAL 510 5% 1/16W
R205	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R206	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R207	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R209	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R210	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R211	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R213	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R214	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R215	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R216	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R217	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R218	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R219	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R220	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R221	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R222	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R223	1-218-271-11	s	METAL 2K 0.50% 1/16W
R224	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R225	1-218-271-11	s	METAL 2K 0.50% 1/16W
R226	1-218-724-11	s	METAL 22K 0.50% 1/16W
R227	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R228	1-218-724-11	s	METAL 22K 0.50% 1/16W
R229	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R230	1-218-724-11	s	METAL 22K 0.50% 1/16W
R231	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R232	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R233	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R234	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R235	1-218-724-11	s	METAL 22K 0.50% 1/16W
R236	1-218-724-11	s	METAL 22K 0.50% 1/16W
R237	1-218-724-11	s	METAL 22K 0.50% 1/16W
R238	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R239	1-216-864-11	s	METAL, CHIP 0-OHM
R241	1-218-289-11	s	METAL 510 5% 1/16W
R242	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R243	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R244	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R245	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R246	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R247	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R248	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R249	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R250	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R251	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R252	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R253	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R254	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R255	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R256	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R257	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R258	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R259	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R260	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R261	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R262	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R263	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R264	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R265	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R266	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R267	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R268	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R269	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R270	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R271	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R272	1-216-818-11	s	METAL, CHIP 560 5% 1/16W
R274	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R275	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R276	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R277	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R278	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R279	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R280	1-216-865-11	s	METAL 3K 0.50% 1/16W
R281	1-216-865-11	s	METAL 3K 0.50% 1/16W
R282	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R283	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R284	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R285	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R286	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R287	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R288	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R289	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R290	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R291	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R292	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R293	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R294	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R295	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R296	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
RV1	1-238-087-11	s	RES, ADJ CERMET 1K
RV2	1-238-087-11	s	RES, ADJ CERMET 1K
RV3	1-238-087-11	s	RES, ADJ CERMET 1K
RV5	1-238-090-11	s	RES, ADJ CERMET 10K
RV6	1-238-089-11	s	RES, ADJ CERMET 4.7K
RV7	1-238-089-11	s	RES, ADJ CERMET 4.7K
RV8	1-238-088-11	s	RES, ADJ, CERMET 2.2K
RV9	1-238-089-11	s	RES, ADJ CERMET 4.7K
RV10	1-238-088-11	s	RES, ADJ, CERMET 2.2K
RV11	1-238-087-11	s	RES, ADJ CERMET 1K
RV12	1-238-087-11	s	RES, ADJ CERMET 1K
RV13	1-238-087-11	s	RES, ADJ CERMET 1K
RV14	1-238-087-11	s	RES, ADJ CERMET 1K
RV15	1-238-087-11	s	RES, ADJ CERMET 1K

PR-158P BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-147-A	o	MOUNTED CIRCUIT BOARD, PR-158P (DXC-930P,XC-009P)
C1	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C2	1-162-910-11	s	CERAMIC 5PF 0.25PF 50V
C3	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C4	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C5	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C6	1-126-391-11	s	ELECT, CHIP 47uF 20% 6.3V
C7	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C8	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C9	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C10	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C11	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C14	1-135-167-21	s	TANTALUM, CHIP 68uF 20% 6.3V
C15	1-126-391-11	s	ELECT, CHIP 47uF 20% 6.3V
C16	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C17	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C18	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C19	1-164-156-11	s	CERAMIC 0.1uF 25V
C20	1-164-156-11	s	CERAMIC 0.1uF 25V
C21	1-162-910-11	s	CERAMIC 5PF 0.25PF 50V
C22	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C27	1-164-156-11	s	CERAMIC 0.1uF 25V
C28	1-164-156-11	s	CERAMIC 0.1uF 25V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C32	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C33	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C34	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C35	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C36	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C37	1-164-156-11	s	CERAMIC 0.1uF 25V
C38	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C39	1-135-167-21	s	TANTALUM, CHIP 68uF 20% 6.3V
C40	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C41	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C42	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C43	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C44	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C45	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 20V
C46	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C47	1-135-167-21	s	TANTALUM, CHIP 68uF 20% 6.3V
C48	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C49	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C50	1-162-910-11	s	CERAMIC 5PF 0.25PF 50V
C51	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C52	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C53	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C54	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C55	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C56	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C57	1-164-156-11	s	CERAMIC 0.1uF 25V
C58	1-164-156-11	s	CERAMIC 0.1uF 25V
C59	1-164-156-11	s	CERAMIC 0.1uF 25V
C60	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C61	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C62	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 20V
C63	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 20V
C64	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 20V
C65	1-164-156-11	s	CERAMIC 0.1uF 25V
C66	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C67	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C68	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C69	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C70	1-162-949-11	s	CERAMIC 47PF 5% 50V
C71	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C72	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C73	1-164-156-11	s	CERAMIC 0.1uF 25V
C74	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C75	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C76	1-164-156-11	s	CERAMIC 0.1uF 25V
C77	1-135-167-21	s	TANTALUM, CHIP 68uF 20% 6.3V
C78	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 20V
C79	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C80	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C81	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C82	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C83	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C84	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C85	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C86	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C87	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C88	1-164-156-11	s	CERAMIC 0.1uF 25V
C89	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C90	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C91	1-164-155-11	s	CERAMIC 75PF 5% 50V
C92	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C93	1-164-155-11	s	CERAMIC 75PF 5% 50V
C94	1-135-208-11	s	TANTALUM 1uF 20% 10V
C95	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C96	1-135-216-11	s	TANTALUM 10uF 20% 10V
C97	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C98	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C99	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C100	1-164-156-11	s	CERAMIC 0.1uF 25V
C101	1-164-156-11	s	CERAMIC 0.1uF 25V
C102	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C103	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C104	1-164-156-11	s	CERAMIC 0.1uF 25V
C105	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C106	1-135-152-21	s	TANTALUM, CHIP 1.5uF 10% 25V
C107	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C108	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C109	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C110	1-162-925-11	s	CERAMIC, CHIP 68PF 5% 50V
C111	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C112	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C113	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C114	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C115	1-162-962-11	s	CERAMIC 470PF 10% 50V

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Ref. No. or Q'ty	Part No.	SP	Description
C116	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C117	1-126-391-11	s	ELECT, CHIP 47uF 20% 6.3V
C118	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C119	1-164-156-11	s	CERAMIC 0.1uF 25V
C120	1-162-918-11	s	CERAMIC, CHIP 18PF 5% 50V
C121	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C122	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C123	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C124	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C125	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C126	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C127	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C128	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
CN1	1-569-607-11	s	CONNECTOR, BOARD TO BOARD 24P
CN2	1-569-607-11	s	CONNECTOR, BOARD TO BOARD 24P
D1	8-719-123-85	s	DIODE 1SS304
D2	8-719-123-85	s	DIODE 1SS304
DL1	1-415-730-21	s	DELAY LINE, LC 100nS
DL2	1-415-730-21	s	DELAY LINE, LC 100nS
DL3	1-415-730-21	s	DELAY LINE, LC 100nS
DL4	1-415-864-21	s	DELAY LINE, LC
DL5	1-415-763-21	s	DELAY LINE, LC
DL6	1-415-730-21	s	DELAY LINE, LC 100nS
DL7	1-415-730-21	s	DELAY LINE, LC 100nS
DL8	1-415-730-21	s	DELAY LINE, LC 100nS
FL1	1-409-496-21	s	FILTER, LC TRAP
FL2	1-409-496-21	s	FILTER, LC TRAP
FL3	1-409-496-21	s	FILTER, LC TRAP
FL4	1-239-211-21	s	FILTER, BANDPASS
IC1	8-759-030-16	s	IC MC34182M
IC2	8-759-300-71	s	IC HD14053BFP
IC3	8-759-234-77	s	IC TC4S66F
IC4	8-759-234-77	s	IC TC4S66F
IC5	8-759-209-57	s	IC TC4S69F
IC6	8-759-030-16	s	IC MC34182M
IC7	8-759-234-77	s	IC TC4S66F
IC8	8-759-052-67	s	IC UPC2372GF-3B9
IC9	8-759-030-16	s	IC MC34182M
IC10	8-759-927-46	s	IC SN74HC00NS
IC11	8-759-926-37	s	IC SN74HC193ANS
IC12	8-759-925-83	s	IC SN74HC27NS
IC13	8-759-635-27	s	IC M62352GP-E1
IC14	8-759-906-59	s	IC CX22017
IC15	8-759-209-57	s	IC TC4S69F
IC16	8-759-635-27	s	IC M62352GP-E1
IC17	8-752-056-59	s	IC CXA1592R
IC18	8-759-635-27	s	IC M62352GP-E1
L1	1-412-030-11	s	INDUCTOR CHIP 22uH
L2	1-412-030-11	s	INDUCTOR CHIP 22uH
L3	1-412-030-11	s	INDUCTOR CHIP 22uH
L4	1-412-030-11	s	INDUCTOR CHIP 22uH
L5	1-412-032-11	s	INDUCTOR CHIP 100uH
L6	1-412-032-11	s	INDUCTOR CHIP 100uH
L7	1-412-032-11	s	INDUCTOR CHIP 100uH
L8	1-412-030-11	s	INDUCTOR CHIP 22uH
L12	1-412-034-11	s	INDUCTOR CHIP 330uH
L13	1-412-034-11	s	INDUCTOR CHIP 330uH

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Ref. No. or Q'ty	Part No.	SP	Description
L14	1-412-032-11	s	INDUCTOR CHIP 100uH
LV1	1-414-071-21	s	COIL, VAR
Q1	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q2	8-729-427-83	s	TRANSISTOR XP6501
Q3	8-729-117-32	s	TRANSISTOR 2SC4177
Q4	8-729-117-32	s	TRANSISTOR 2SC4177
Q5	8-729-117-32	s	TRANSISTOR 2SC4177
Q6	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q7	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q8	8-729-118-58	s	TRANSISTOR 2SK852-X4
Q9	8-729-117-32	s	TRANSISTOR 2SC4177
Q10	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q11	8-729-117-32	s	TRANSISTOR 2SC4177
Q12	8-729-117-32	s	TRANSISTOR 2SC4177
Q13	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q14	8-729-117-32	s	TRANSISTOR 2SC4177
Q15	8-729-117-32	s	TRANSISTOR 2SC4177
Q16	8-729-117-32	s	TRANSISTOR 2SC4177
Q17	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q18	8-729-427-83	s	TRANSISTOR XP6501
Q19	8-729-117-32	s	TRANSISTOR 2SC4177
Q20	8-729-117-32	s	TRANSISTOR 2SC4177
Q21	8-729-117-32	s	TRANSISTOR 2SC4177
Q22	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q23	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q24	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q25	8-729-117-32	s	TRANSISTOR 2SC4177
Q26	8-729-427-83	s	TRANSISTOR XP6501
Q27	8-729-117-32	s	TRANSISTOR 2SC4177
Q28	8-729-117-32	s	TRANSISTOR 2SC4177
Q29	8-729-117-32	s	TRANSISTOR 2SC4177
Q30	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q31	8-729-117-32	s	TRANSISTOR 2SC4177
Q32	8-729-117-32	s	TRANSISTOR 2SC4177
Q33	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q34	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q35	8-729-427-83	s	TRANSISTOR XP6501
Q36	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q37	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q38	8-729-118-58	s	TRANSISTOR 2SK852-X4
Q39	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q40	8-729-117-32	s	TRANSISTOR 2SC4177
Q41	8-729-117-32	s	TRANSISTOR 2SC4177
Q42	8-729-427-74	s	TRANSISTOR XP4601
Q43	8-729-117-32	s	TRANSISTOR 2SC4177
Q44	8-729-427-83	s	TRANSISTOR XP6501
Q45	8-729-117-32	s	TRANSISTOR 2SC4177
Q46	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q47	8-729-117-32	s	TRANSISTOR 2SC4177
Q48	8-729-117-32	s	TRANSISTOR 2SC4177
Q49	8-729-427-83	s	TRANSISTOR XP6501
Q50	8-729-429-98	s	TRANSISTOR XP1401
Q51	8-729-117-32	s	TRANSISTOR 2SC4177
Q52	8-729-117-32	s	TRANSISTOR 2SC4177
Q53	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q54	8-729-117-32	s	TRANSISTOR 2SC4177
Q55	8-729-117-32	s	TRANSISTOR 2SC4177

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Ref. No. or Q'ty	Part No.	SP	Description
Q56	8-729-427-83	s	TRANSISTOR XP6501
Q57	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q58	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q59	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q60	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q61	8-729-117-32	s	TRANSISTOR 2SC4177
Q62	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q63	8-729-117-32	s	TRANSISTOR 2SC4177
Q64	8-729-427-83	s	TRANSISTOR XP6501
Q65	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q66	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q67	8-729-117-32	s	TRANSISTOR 2SC4177
Q68	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q69	8-729-117-32	s	TRANSISTOR 2SC4177
Q70	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q71	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q72	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q73	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q74	8-729-117-32	s	TRANSISTOR 2SC4177
Q75	8-729-117-32	s	TRANSISTOR 2SC4177
Q76	8-729-117-32	s	TRANSISTOR 2SC4177
Q77	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q78	8-729-117-32	s	TRANSISTOR 2SC4177
Q79	8-729-117-32	s	TRANSISTOR 2SC4177
Q80	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q81	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q82	8-729-117-32	s	TRANSISTOR 2SC4177
Q83	8-729-117-32	s	TRANSISTOR 2SC4177
Q84	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q85	8-729-117-32	s	TRANSISTOR 2SC4177
Q87	8-729-117-32	s	TRANSISTOR 2SC4177
Q89	8-729-117-32	s	TRANSISTOR 2SC4177
Q90	8-729-117-32	s	TRANSISTOR 2SC4177
R1	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R2	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R3	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R4	1-218-330-11	s	METAL 11K 0.50% 1/16W
R5	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R6	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R7	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R8	1-220-373-11	s	METAL 620 0.50% 1/16W
R9	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R10	1-218-457-11	s	METAL 910 0.50% 1/16W
R11	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R12	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R13	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R14	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R15	1-216-840-11	s	METAL, CHIP 39K 5% 1/16W
R16	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R17	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R18	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R19	1-216-850-11	s	METAL 270K 5% 1/16W
R20	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R21	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R22	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R23	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R24	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R25	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R26	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R27	1-218-484-11	s	METAL 750 0.50% 1/16W
R28	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R29	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R30	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R31	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R32	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R33	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R34	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R35	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R36	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R37	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R38	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R39	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R40	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R41	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R42	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R43	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R44	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R45	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R46	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R47	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R48	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R49	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R50	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R51	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R52	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R53	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R54	1-216-840-11	s	METAL, CHIP 39K 5% 1/16W
R55	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R56	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R57	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R58	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R59	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R60	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R62	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R63	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R64	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R65	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R66	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R67	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R68	1-218-484-11	s	METAL 750 0.50% 1/16W
R69	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R70	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R71	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R72	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R73	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R74	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R75	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R76	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R77	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R78	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R79	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R80	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R81	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R82	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R83	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R84	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R85	1-216-817-11	s	METAL, CHIP 470 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R86	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R87	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R88	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R89	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R90	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R91	1-216-840-11	s	METAL, CHIP 39K 5% 1/16W
R92	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R93	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R94	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R95	1-216-850-11	s	METAL 270K 5% 1/16W
R96	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R97	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R98	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R99	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R100	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R101	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R102	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R103	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R104	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R105	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R106	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R107	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R108	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R109	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R110	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R111	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R112	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R113	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R114	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R115	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R116	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R117	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R118	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R119	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R120	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R121	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R122	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R123	1-218-484-11	s	METAL 750 0.50% 1/16W
R124	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R125	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R126	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R127	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R128	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R129	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R130	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R131	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R132	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R133	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R134	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R135	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R136	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R137	1-218-259-11	s	METAL, CHIP 13.7K 0.5% 1/10W
R138	1-218-254-11	s	METAL, CHIP 2.55K 0.5% 1/10W
R140	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R141	1-216-865-11	s	METAL 3K 0.50% 1/16W
R142	1-218-721-11	s	METAL 16K 0.50% 1/16W
R152	1-218-254-11	s	METAL, CHIP 2.55K 0.5% 1/10W
R153	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R154	1-216-814-11	s	METAL, CHIP 270 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R155	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R156	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R157	1-218-729-11	s	METAL 36K 0.50% 1/16W
R158	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R159	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R160	1-218-729-11	s	METAL 36K 0.50% 1/16W
R161	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R162	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R163	1-218-729-11	s	METAL 36K 0.50% 1/16W
R164	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R165	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R166	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R167	1-218-257-11	s	METAL, CHIP 4.99K 0.5% 1/10W
R168	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R169	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R170	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R172	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R173	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R174	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R175	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R176	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R177	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R178	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R179	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R180	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R181	1-218-271-11	s	METAL 2K 0.50% 1/16W
R182	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R183	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R184	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R185	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R186	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R187	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R188	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R189	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R190	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R191	1-218-271-11	s	METAL 2K 0.50% 1/16W
R192	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R193	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R194	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R197	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R198	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R199	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R200	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R201	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R202	1-218-289-11	s	METAL 510 5% 1/16W
R203	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R204	1-218-289-11	s	METAL 510 5% 1/16W
R205	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R206	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R207	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R208	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R209	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R210	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R211	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R213	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R214	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R215	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R216	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R217	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W

(PR-158P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R218	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R219	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R220	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R221	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R222	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R223	1-218-271-11	s	METAL 2K 0.50% 1/16W
R224	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R225	1-218-271-11	s	METAL 2K 0.50% 1/16W
R226	1-218-724-11	s	METAL 22K 0.50% 1/16W
R227	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R228	1-218-724-11	s	METAL 22K 0.50% 1/16W
R229	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R230	1-218-724-11	s	METAL 22K 0.50% 1/16W
R231	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R232	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R233	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R234	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R235	1-218-724-11	s	METAL 22K 0.50% 1/16W
R236	1-218-724-11	s	METAL 22K 0.50% 1/16W
R237	1-218-724-11	s	METAL 22K 0.50% 1/16W
R238	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R240	1-216-864-11	s	METAL, CHIP 0-OHM
R241	1-218-289-11	s	METAL 510 5% 1/16W
R242	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R243	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R244	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R245	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R246	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R247	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R248	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R249	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R250	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R251	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R252	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R253	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R254	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R255	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R256	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R257	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R258	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R259	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R260	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R261	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R262	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R263	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R264	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R265	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R266	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R267	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R268	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R269	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R270	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R271	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R272	1-216-818-11	s	METAL, CHIP 560 5% 1/16W
R273	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R274	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R275	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R276	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R277	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R278	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R279	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R280	1-216-865-11	s	METAL 3K 0.50% 1/16W
R281	1-216-865-11	s	METAL 3K 0.50% 1/16W
R282	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R283	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R284	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R285	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R286	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R287	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R288	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R289	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R290	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R291	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R292	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R293	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R294	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R295	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R296	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
RV1	1-238-087-11	s	RES, ADJ CERMET 1K
RV2	1-238-087-11	s	RES, ADJ CERMET 1K
RV3	1-238-087-11	s	RES, ADJ CERMET 1K
RV5	1-238-090-11	s	RES, ADJ CERMET 10K
RV6	1-238-089-11	s	RES, ADJ CERMET 4.7K
RV7	1-238-089-11	s	RES, ADJ CERMET 4.7K
RV8	1-238-088-11	s	RES, ADJ, CERMET 2.2K
RV9	1-238-089-11	s	RES, ADJ CERMET 4.7K
RV10	1-238-088-11	s	RES, ADJ, CERMET 2.2K
RV11	1-238-087-11	s	RES, ADJ CERMET 1K
RV12	1-238-087-11	s	RES, ADJ CERMET 1K
RV13	1-238-087-11	s	RES, ADJ CERMET 1K
RV14	1-238-087-11	s	RES, ADJ CERMET 1K
RV15	1-238-087-11	s	RES, ADJ CERMET 1K

SG-194 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-141-A	o	MOUNTED CIRCUIT BOARD, SG-194 (DXC-930/960MD,XC-009)
C1	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C2	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C3	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C4	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C5	1-164-156-11	s	CERAMIC 0.1uF 25V
C6	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C7	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C8	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C9	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C10	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C11	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C12	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C13	1-135-190-21	s	TANTALUM 0.1uF 20% 20V
C14	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C15	1-162-918-11	s	CERAMIC, CHIP 18PF 5% 50V
C16	1-135-190-21	s	TANTALUM 0.1uF 20% 20V
C17	1-135-190-21	s	TANTALUM 0.1uF 20% 20V
C18	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C19	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C20	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C21	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C22	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C23	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C24	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C27	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C28	1-164-156-11	s	CERAMIC 0.1uF 25V
C29	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C32	1-164-156-11	s	CERAMIC 0.1uF 25V
C33	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C34	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C35	1-164-156-11	s	CERAMIC 0.1uF 25V
C36	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C37	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C38	1-164-363-11	s	CERAMIC 560PF 5% 50V
C39	1-135-190-21	s	TANTALUM 0.1uF 20% 20V
C40	1-164-677-11	s	CERAMIC 0.033uF 10% 16V
C41	1-135-215-21	s	TANTALUM 6.8uF 20% 16V
C42	1-135-215-21	s	TANTALUM 6.8uF 20% 16V
C43	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C44	1-135-216-11	s	TANTALUM 10uF 20% 10V
C45	1-164-156-11	s	CERAMIC 0.1uF 25V
C46	1-164-156-11	s	CERAMIC 0.1uF 25V
C47	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C48	1-135-216-11	s	TANTALUM 10uF 20% 10V
C49	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C50	1-135-190-21	s	TANTALUM 0.1uF 20% 20V
C51	1-135-190-21	s	TANTALUM 0.1uF 20% 20V
C52	1-162-918-11	s	CERAMIC, CHIP 18PF 5% 50V
C53	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C54	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C56	1-162-957-11	s	CERAMIC 220PF 5% 50V
C57	1-162-957-11	s	CERAMIC 220PF 5% 50V

(SG-194 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C58	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C59	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C60	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C61	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C62	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C63	1-164-315-11	s	CERAMIC 470PF 5% 50V
C65	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C67	1-164-156-11	s	CERAMIC 0.1uF 25V
CN1	1-569-607-11	s	CONNECTOR, BOARD TO BOARD 24P
CP1	1-577-181-11	s	OSCILLATOR, CRYSTAL 28.63636MHz
CP2	1-577-089-11	s	OSCILLATOR, CRYSTAL 14.31818MHz
D1	8-719-800-76	s	DIODE 1SS226
D2	8-719-800-76	s	DIODE 1SS226
D3	8-719-800-76	s	DIODE 1SS226
IC1	8-759-100-96	s	IC UPC4558G2
IC2	8-759-300-71	s	IC HD14053BFP
IC3	8-759-300-71	s	IC HD14053BFP
IC4	8-759-987-27	s	IC LM1881M
IC5	8-759-702-08	s	IC NJM360M
IC6	8-752-335-47	s	IC CXD1216M
IC7	8-759-234-77	s	IC TC4S66F
IC8	8-759-030-16	s	IC MC34182M
IC10	8-752-332-67	s	IC CXD1217M
IC11	8-759-239-34	s	IC TC74HC4538AF
IC12	8-759-100-94	s	IC UPC358G2
IC13	8-759-902-88	s	IC SN74LS123NS
IC14	8-759-209-57	s	IC TC4S69F
L2	1-412-031-11	s	INDUCTOR CHIP 47uH
L3	1-412-032-11	s	INDUCTOR CHIP 100uH
L4	1-412-031-11	s	INDUCTOR CHIP 47uH
Q1	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q2	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q3	8-729-117-32	s	TRANSISTOR 2SC4177
Q4	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q5	8-729-118-58	s	TRANSISTOR 2SK852-X4
Q6	8-729-117-32	s	TRANSISTOR 2SC4177
Q7	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q8	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q9	8-729-117-32	s	TRANSISTOR 2SC4177
Q10	8-729-117-32	s	TRANSISTOR 2SC4177
Q11	8-729-117-32	s	TRANSISTOR 2SC4177
Q12	8-729-117-32	s	TRANSISTOR 2SC4177
R1	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R2	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R3	1-216-801-11	s	METAL 22 0.50% 1/16W
R4	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R5	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R6	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R7	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R8	1-216-851-11	s	METAL, CHIP 330K 5% 1/16W
R9	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R10	1-218-725-11	s	METAL 24K 0.50% 1/16W
R11	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R12	1-216-847-11	s	METAL, CHIP 150K 5% 1/16W
R13	1-218-344-11	s	METAL 7.5K 0.50% 1/16W
R14	1-218-695-11	s	METAL 1.3K 0.50% 1/16W

(SG-194 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R15	1-218-289-11	s	METAL 510 5% 1/16W
R16	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R17	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R18	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R19	1-216-842-11	s	METAL, CHIP 56K 5% 1/16W
R20	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R21	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R22	1-216-855-11	s	METAL 680K 5% 1/16W
R23	1-216-818-11	s	METAL, CHIP 560 5% 1/16W
R24	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R25	1-216-811-11	s	METAL, CHIP 150 5% 1/16W
R26	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R28	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R30	1-216-864-11	s	METAL, CHIP 0-OHM
R32	1-216-864-11	s	METAL, CHIP 0-OHM
R33	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R35	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R36	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R37	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R38	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R39	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R40	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R41	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R42	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R43	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R44	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R45	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R46	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R47	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R48	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R50	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R51	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R52	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R54	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R55	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R56	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R57	1-216-864-11	s	METAL, CHIP 0-OHM
R59	1-218-740-11	s	METAL 100K 0.50% 1/16W
R60	1-218-883-11	s	METAL, CHIP 33K 0.50% 1/16W
R61	1-218-724-11	s	METAL 22K 0.50% 1/16W
R62	1-218-701-11	s	METAL 2.4K 0.50% 1/16W
R63	1-218-716-11	s	METAL 10K 0.50% 1/16W
R64	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R65	1-218-668-11	s	METAL, CHIP 100 0.50% 1/16W
R66	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R67	1-218-668-11	s	METAL, CHIP 100 0.50% 1/16W
R68	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R69	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R70	1-216-804-11	s	METAL 39 5% 1/16W
R71	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R72	1-218-723-11	s	METAL 20K 0.50% 1/16W
R73	1-218-716-11	s	METAL 10K 0.50% 1/16W
R74	1-218-727-11	s	METAL 30K 0.50% 1/16W
R75	1-218-716-11	s	METAL 10K 0.50% 1/16W
R76	1-218-716-11	s	METAL 10K 0.50% 1/16W
R77	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R78	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R79	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R80	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R81	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R82	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R83	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R84	1-218-716-11	s	METAL 10K 0.50% 1/16W
R85	1-216-865-11	s	METAL 3K 0.50% 1/16W
R86	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R87	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R88	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R89	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R90	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R91	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R92	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R93	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R94	1-216-819-11	s	METAL, CHIP 680 5% 1/16W
R95	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R96	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R97	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
RV1	1-238-090-11	s	RES, ADJ CERMET 10K

SG-194P BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-142-A	o	MOUNTED CIRCUIT BOARD, SG-194P (DXC-930P,XC-009P)
C1	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C2	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C3	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C4	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C5	1-164-156-11	s	CERAMIC 0.1uF 25V
C6	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C7	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C8	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C9	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C10	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C11	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C12	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C13	1-135-190-21	s	TANTALUM 0.1uF 20% 20V
C14	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C15	1-162-916-11	s	CERAMIC, CHIP 12PF 5% 50V
C16	1-135-190-21	s	TANTALUM 0.1uF 20% 20V
C17	1-135-190-21	s	TANTALUM 0.1uF 20% 20V
C18	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C19	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C20	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C21	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C22	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C23	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C24	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C27	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C28	1-164-156-11	s	CERAMIC 0.1uF 25V
C29	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C32	1-164-156-11	s	CERAMIC 0.1uF 25V
C33	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C34	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C35	1-164-156-11	s	CERAMIC 0.1uF 25V
C36	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C37	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C38	1-164-363-11	s	CERAMIC 560PF 5% 50V
C39	1-135-190-21	s	TANTALUM 0.1uF 20% 20V
C40	1-164-677-11	s	CERAMIC 0.033uF 10% 16V
C41	1-135-215-21	s	TANTALUM 6.8uF 20% 16V
C42	1-135-215-21	s	TANTALUM 6.8uF 20% 16V
C43	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C44	1-135-216-11	s	TANTALUM 10uF 20% 10V
C45	1-164-156-11	s	CERAMIC 0.1uF 25V
C46	1-164-156-11	s	CERAMIC 0.1uF 25V
C47	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C48	1-135-216-11	s	TANTALUM 10uF 20% 10V
C49	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C50	1-135-190-21	s	TANTALUM 0.1uF 20% 20V
C51	1-135-190-21	s	TANTALUM 0.1uF 20% 20V
C52	1-162-918-11	s	CERAMIC, CHIP 18PF 5% 50V
C53	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C54	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C56	1-162-957-11	s	CERAMIC 220PF 5% 50V
C57	1-162-957-11	s	CERAMIC 220PF 5% 50V

(SG-194P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C58	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C59	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C60	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C61	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C62	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
C63	1-164-315-11	s	CERAMIC 470PF 5% 50V
C65	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C67	1-164-156-11	s	CERAMIC 0.1uF 25V
CN1	1-569-607-11	s	CONNECTOR, BOARD TO BOARD 24P
CP1	1-577-182-11	s	OSCILLATOR, CRYSTAL
CP2	1-577-183-11	s	OSCILLATOR, CRYSTAL 17.734475 MHZ
D1	8-719-800-76	s	DIODE 1SS226
D2	8-719-800-76	s	DIODE 1SS226
D3	8-719-800-76	s	DIODE 1SS226
IC1	8-759-100-96	s	IC UPC4558G2
IC2	8-759-300-71	s	IC HD14053BFP
IC3	8-759-300-71	s	IC HD14053BFP
IC4	8-759-987-27	s	IC LM1881M
IC5	8-759-702-08	s	IC NJM360M
IC6	8-752-335-47	s	IC CXD1216M
IC7	8-759-234-77	s	IC TC4S66F
IC8	8-759-030-16	s	IC MC34182M
IC10	8-752-332-67	s	IC CXD1217M
IC11	8-759-239-34	s	IC TC74HC4538AF
IC12	8-759-100-94	s	IC UPC358G2
IC13	8-759-902-88	s	IC SN74LS123NS
IC14	8-759-209-57	s	IC TC4S69F
L2	1-412-031-11	s	INDUCTOR CHIP 47uH
L3	1-412-032-11	s	INDUCTOR CHIP 100uH
L4	1-412-031-11	s	INDUCTOR CHIP 47uH
Q1	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q2	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q3	8-729-117-32	s	TRANSISTOR 2SC4177
Q4	8-729-926-19	s	TRANSISTOR 2SC4103-Q
Q5	8-729-118-58	s	TRANSISTOR 2SK852-X4
Q8	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q9	8-729-117-32	s	TRANSISTOR 2SC4177
Q10	8-729-117-32	s	TRANSISTOR 2SC4177
Q11	8-729-117-32	s	TRANSISTOR 2SC4177
Q12	8-729-117-32	s	TRANSISTOR 2SC4177
R1	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R2	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R3	1-216-801-11	s	METAL 22 0.50% 1/16W
R4	1-218-285-11	s	METAL, CHIP 75 5% 1/16W
R5	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R6	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R7	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R8	1-216-851-11	s	METAL, CHIP 330K 5% 1/16W
R9	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R10	1-218-725-11	s	METAL 24K 0.50% 1/16W
R11	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R12	1-216-847-11	s	METAL, CHIP 150K 5% 1/16W
R13	1-218-344-11	s	METAL 7.5K 0.50% 1/16W
R14	1-218-695-11	s	METAL 1.3K 0.50% 1/16W
R15	1-218-289-11	s	METAL 510 5% 1/16W
R16	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W

(SG-194P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R17	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R18	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R19	1-216-842-11	s	METAL, CHIP 56K 5% 1/16W
R20	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R21	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R22	1-216-855-11	s	METAL 680K 5% 1/16W
R23	1-216-818-11	s	METAL, CHIP 560 5% 1/16W
R24	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R25	1-216-811-11	s	METAL, CHIP 150 5% 1/16W
R26	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R28	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R29	1-216-864-11	s	METAL, CHIP 0-OHM
R31	1-216-864-11	s	METAL, CHIP 0-OHM
R33	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R34	1-216-864-11	s	METAL, CHIP 0-OHM
R35	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R36	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R37	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R38	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R39	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R40	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R41	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R42	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R43	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R44	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R45	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R49	1-216-864-11	s	METAL, CHIP 0-OHM
R50	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R51	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R52	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R53	1-216-864-11	s	METAL, CHIP 0-OHM
R54	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R55	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R56	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R58	1-216-864-11	s	METAL, CHIP 0-OHM
R59	1-218-740-11	s	METAL 100K 0.50% 1/16W
R60	1-218-883-11	s	METAL, CHIP 33K 0.50% 1/16W
R61	1-218-724-11	s	METAL 22K 0.50% 1/16W
R62	1-218-701-11	s	METAL 2.4K 0.50% 1/16W
R63	1-218-716-11	s	METAL 10K 0.50% 1/16W
R64	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R65	1-218-668-11	s	METAL, CHIP 100 0.50% 1/16W
R66	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R67	1-218-668-11	s	METAL, CHIP 100 0.50% 1/16W
R68	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R69	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R70	1-216-804-11	s	METAL 39 5% 1/16W
R71	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R72	1-218-721-11	s	METAL 16K 0.50% 1/16W
R73	1-218-716-11	s	METAL 10K 0.50% 1/16W
R74	1-218-732-11	s	METAL 47K 0.50% 1/16W
R75	1-218-716-11	s	METAL 10K 0.50% 1/16W
R76	1-218-716-11	s	METAL 10K 0.50% 1/16W
R77	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R78	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R79	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R80	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R81	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R82	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R83	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R84	1-218-716-11	s	METAL 10K 0.50% 1/16W
R85	1-218-727-11	s	METAL 30K 0.50% 1/16W
R86	1-218-295-11	s	METAL 5.6K 0.50% 1/16W
R87	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R88	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R89	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R90	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R91	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R92	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R93	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R94	1-216-819-11	s	METAL, CHIP 680 5% 1/16W
R95	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R96	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R97	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
RV1	1-238-090-11	s	RES, ADJ CERMET 10K

TG-102 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-135-A	o	MOUNTED CIRCUIT BOARD, TG-102 (DXC-930/960MD/XC-009)
C1	1-126-194-21	s	ELECT 1.5uF 20% 50V
C2	1-164-005-11	s	CERAMIC, CHIP 0.47uF 25V
C3	1-126-194-21	s	ELECT 1.5uF 20% 50V
C4	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C5	1-164-156-11	s	CERAMIC 0.1uF 25V
C6	1-164-156-11	s	CERAMIC 0.1uF 25V
C7	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C8	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C9	1-135-214-21	s	TANTALUM 4.7uF 20% 20V
C10	1-164-156-11	s	CERAMIC 0.1uF 25V
C11	1-164-156-11	s	CERAMIC 0.1uF 25V
C12	1-126-199-11	s	ELECT 6.8uF 20% 35V
C13	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C14	1-164-156-11	s	CERAMIC 0.1uF 25V
C15	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C17	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C18	1-126-194-21	s	ELECT 1.5uF 20% 50V
C19	1-164-005-11	s	CERAMIC, CHIP 0.47uF 25V
C20	1-126-194-21	s	ELECT 1.5uF 20% 50V
C21	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C22	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C23	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C24	1-135-214-21	s	TANTALUM 4.7uF 20% 20V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-164-156-11	s	CERAMIC 0.1uF 25V
C27	1-126-199-11	s	ELECT 6.8uF 20% 35V
C28	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C32	1-164-156-11	s	CERAMIC 0.1uF 25V
C33	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C34	1-164-156-11	s	CERAMIC 0.1uF 25V
C35	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C36	1-164-156-11	s	CERAMIC 0.1uF 25V
C37	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C38	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C39	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C40	1-164-156-11	s	CERAMIC 0.1uF 25V
C41	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C42	1-164-156-11	s	CERAMIC 0.1uF 25V
C43	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C44	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C45	1-126-194-21	s	ELECT 1.5uF 20% 50V
C46	1-164-005-11	s	CERAMIC, CHIP 0.47uF 25V
C47	1-126-194-21	s	ELECT 1.5uF 20% 50V
C48	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C49	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C50	1-135-214-21	s	TANTALUM 4.7uF 20% 20V
C51	1-164-156-11	s	CERAMIC 0.1uF 25V
C52	1-126-199-11	s	ELECT 6.8uF 20% 35V
C53	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C54	1-164-156-11	s	CERAMIC 0.1uF 25V
CN1	1-691-630-21	o	CONNECTOR, FFC/FPC (ZIF) 20P
CN2	1-691-630-21	o	CONNECTOR, FFC/FPC (ZIF) 20P
CN3	1-691-630-21	o	CONNECTOR, FFC/FPC (ZIF) 20P

(TG-102 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D1	8-719-820-05	s	DIODE 1SS181
D2	8-719-800-76	s	DIODE 1SS226
D3	8-719-820-05	s	DIODE 1SS181
D4	8-719-820-05	s	DIODE 1SS181
D5	8-719-800-76	s	DIODE 1SS226
D6	8-719-820-05	s	DIODE 1SS181
D7	8-719-820-05	s	DIODE 1SS181
D8	8-719-800-76	s	DIODE 1SS226
D9	8-719-820-05	s	DIODE 1SS181
IC1	8-752-327-48	s	IC CXD1250N
IC2	8-752-351-03	s	IC CXD1256AR
IC3	8-752-327-48	s	IC CXD1250N
IC4	8-759-925-90	s	IC SN74HC74NS
IC5	8-759-927-46	s	IC SN74HC00NS
IC6	8-752-327-48	s	IC CXD1250N
IC7	8-752-351-03	s	IC CXD1256AR
IC8	8-759-036-25	s	IC MC74AC04M
Q1	8-729-117-32	s	TRANSISTOR 2SC4177
Q2	8-729-429-44	s	TRANSISTOR XP1501
Q3	8-729-429-98	s	TRANSISTOR XP1401
Q5	8-729-117-32	s	TRANSISTOR 2SC4177
Q6	8-729-429-44	s	TRANSISTOR XP1501
Q7	8-729-429-98	s	TRANSISTOR XP1401
Q8	8-729-429-98	s	TRANSISTOR XP1401
Q9	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q10	8-729-117-32	s	TRANSISTOR 2SC4177
Q11	8-729-429-44	s	TRANSISTOR XP1501
R1	1-216-850-11	s	METAL 270K 5% 1/16W
R2	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R3	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R4	1-216-843-11	s	METAL, CHIP 68K 5% 1/16W
R5	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R6	1-216-864-11	s	METAL, CHIP 0-OHM
R7	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R8	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R9	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R10	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R11	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R12	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R16	1-216-864-11	s	METAL, CHIP 0-OHM
R17	1-216-850-11	s	METAL 270K 5% 1/16W
R18	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R19	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R20	1-216-843-11	s	METAL, CHIP 68K 5% 1/16W
R21	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R22	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R23	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R24	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R25	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R26	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R27	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R28	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R29	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R30	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R31	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R32	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R33	1-216-813-11	s	METAL, CHIP 220 5% 1/16W

(TG-102 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R34	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R35	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R36	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R37	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R38	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R39	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R40	1-216-850-11	s	METAL 270K 5% 1/16W
R41	1-216-843-11	s	METAL, CHIP 68K 5% 1/16W
R42	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R43	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R44	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R45	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R46	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R47	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
RV1	1-238-092-11	s	RES, ADJ CERMET 47K
RV2	1-238-091-11	s	RES, ADJ CERMET 22K
RV3	1-238-092-11	s	RES, ADJ CERMET 47K
RV4	1-238-091-11	s	RES, ADJ CERMET 22K
RV5	1-238-091-11	s	RES, ADJ CERMET 22K
RV6	1-238-092-11	s	RES, ADJ CERMET 47K

TG-102P BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-137-A	o	MOUNTED CIRCUIT BOARD, TG-102P (DXC-930P,XC-009P)
C1	1-126-194-21	s	ELECT 1.5uF 20% 50V
C2	1-164-005-11	s	CERAMIC, CHIP 0.47uF 25V
C3	1-126-194-21	s	ELECT 1.5uF 20% 50V
C4	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C5	1-164-156-11	s	CERAMIC 0.1uF 25V
C6	1-164-156-11	s	CERAMIC 0.1uF 25V
C7	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C8	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C9	1-135-214-21	s	TANTALUM 4.7uF 20% 20V
C10	1-164-156-11	s	CERAMIC 0.1uF 25V
C11	1-164-156-11	s	CERAMIC 0.1uF 25V
C12	1-126-199-11	s	ELECT 6.8uF 20% 35V
C13	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C14	1-164-156-11	s	CERAMIC 0.1uF 25V
C15	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C17	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C18	1-126-194-21	s	ELECT 1.5uF 20% 50V
C19	1-164-005-11	s	CERAMIC, CHIP 0.47uF 25V
C20	1-126-194-21	s	ELECT 1.5uF 20% 50V
C21	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C22	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C23	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C24	1-135-214-21	s	TANTALUM 4.7uF 20% 20V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-164-156-11	s	CERAMIC 0.1uF 25V
C27	1-126-199-11	s	ELECT 6.8uF 20% 35V
C28	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C32	1-164-156-11	s	CERAMIC 0.1uF 25V
C33	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C34	1-164-156-11	s	CERAMIC 0.1uF 25V
C35	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C36	1-164-156-11	s	CERAMIC 0.1uF 25V
C37	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C38	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C39	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C40	1-164-156-11	s	CERAMIC 0.1uF 25V
C41	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C42	1-164-156-11	s	CERAMIC 0.1uF 25V
C43	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C44	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C45	1-126-194-21	s	ELECT 1.5uF 20% 50V
C46	1-164-005-11	s	CERAMIC, CHIP 0.47uF 25V
C47	1-126-194-21	s	ELECT 1.5uF 20% 50V
C48	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C49	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C50	1-135-214-21	s	TANTALUM 4.7uF 20% 20V
C51	1-164-156-11	s	CERAMIC 0.1uF 25V
C52	1-126-199-11	s	ELECT 6.8uF 20% 35V
C53	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C54	1-164-156-11	s	CERAMIC 0.1uF 25V
CN1	1-691-630-21	o	CONNECTOR, FFC/FPC (ZIF) 20P
CN2	1-691-630-21	o	CONNECTOR, FFC/FPC (ZIF) 20P
CN3	1-691-630-21	o	CONNECTOR, FFC/FPC (ZIF) 20P

(TG-102P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D1	8-719-820-05	s	DIODE 1SS181
D2	8-719-800-76	s	DIODE 1SS226
D3	8-719-820-05	s	DIODE 1SS181
D4	8-719-820-05	s	DIODE 1SS181
D5	8-719-800-76	s	DIODE 1SS226
D6	8-719-820-05	s	DIODE 1SS181
D7	8-719-820-05	s	DIODE 1SS181
D8	8-719-800-76	s	DIODE 1SS226
D9	8-719-820-05	s	DIODE 1SS181
IC1	8-752-327-48	s	IC CXD1250N
IC2	8-752-351-03	s	IC CXD1256AR
IC3	8-752-327-48	s	IC CXD1250N
IC4	8-759-925-90	s	IC SN74HC74NS
IC5	8-759-927-46	s	IC SN74HC00NS
IC6	8-752-327-48	s	IC CXD1250N
IC7	8-752-351-03	s	IC CXD1256AR
IC8	8-759-036-25	s	IC MC74AC04M
Q1	8-729-117-32	s	TRANSISTOR 2SC4177
Q2	8-729-429-44	s	TRANSISTOR XP1501
Q3	8-729-429-98	s	TRANSISTOR XP1401
Q5	8-729-117-32	s	TRANSISTOR 2SC4177
Q6	8-729-429-44	s	TRANSISTOR XP1501
Q7	8-729-429-98	s	TRANSISTOR XP1401
Q8	8-729-429-98	s	TRANSISTOR XP1401
Q9	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q10	8-729-117-32	s	TRANSISTOR 2SC4177
Q11	8-729-429-44	s	TRANSISTOR XP1501
R1	1-216-850-11	s	METAL 270K 5% 1/16W
R2	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R3	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R4	1-216-843-11	s	METAL, CHIP 68K 5% 1/16W
R5	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R6	1-216-864-11	s	METAL, CHIP 0-OHM
R7	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R8	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R9	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R10	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R11	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R12	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R15	1-216-864-11	s	METAL, CHIP 0-OHM
R17	1-216-850-11	s	METAL 270K 5% 1/16W
R18	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R19	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R20	1-216-843-11	s	METAL, CHIP 68K 5% 1/16W
R21	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R22	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R23	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R24	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R25	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R26	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R27	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R28	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R29	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R30	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R31	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R32	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R33	1-216-813-11	s	METAL, CHIP 220 5% 1/16W

(TG-102P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R34	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R35	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R36	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R37	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R38	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R39	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R40	1-216-850-11	s	METAL 270K 5% 1/16W
R41	1-216-843-11	s	METAL, CHIP 68K 5% 1/16W
R42	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R43	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R44	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R45	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R46	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R47	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
RV1	1-238-092-11	s	RES, ADJ CERMET 47K
RV2	1-238-091-11	s	RES, ADJ CERMET 22K
RV3	1-238-092-11	s	RES, ADJ CERMET 47K
RV4	1-238-091-11	s	RES, ADJ CERMET 22K
RV5	1-238-091-11	s	RES, ADJ CERMET 22K
RV6	1-238-092-11	s	RES, ADJ CERMET 47K

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-547-463-11	o	FILTER UNIT, OPTICAL
CN1F(to MB-380 board)			
	1-949-642-11	o	HARNESS (ZOOM)
	1-565-122-11	o	HOUSING, 3P
	1-565-164-21	o	CONTACT, FEMALE AWG26-28
CN12F(to MB-380 board)			
	1-949-643-11	o	HARNESS (IRIS)
	1-565-123-11	o	HOUSING, 4P
	1-565-164-21	o	CONTACT, FEMALE AWG26-28
CN3	1-562-222-21	s	CONNECTOR, 6P FEMALE "LENS"
CN4	1-691-629-11	s	CONNECTOR, 20P MALE "CCU" (DXC-930/930P/960MD)
CN4	1-562-381-00	s	CONNECTOR, 12P MALE "DC IN/VBS" (XC-009/009P)
CN5	1-580-090-11	s	CONNECTOR, D-SUB 9P "RGB/SYNC"
CN6	1-562-381-00	s	CONNECTOR, 12P MALE "DC IN/REMOTE (DXC-930/930P/960MD)
CN6	1-563-929-11	s	CONNECTOR, 4P FEMALE "CONTROL" (XC-009/009P)
CN7	1-580-724-21	s	CONNECTOR, BNC "GENLOCK"
CN8	1-580-724-21	s	CONNECTOR, BNC "VIDEO OUT"

SECTION E
CHANGED PARTS

NOTE: The numbers identified by making with) are matching with each serial numbers.

DXC-930

112) Serial No. 10071 through 10120
201) Serial No. 10121 through 10170
202) Serial No. 10171 through 10270
203) Serial No. 10271 through 10320
204) Serial No. 10321 through 10570
207) Serial No. 10571 and higher

DXC-930P

112) Serial No. 10131 through 10230
201) Serial No. 10231 through 10380
202) Serial No. 10381 through 10480
203) Serial No. 10481 through 10580
204) Serial No. 10581 through 10980
207) Serial No. 10981 and higher
207) Serial No. 50061 and higher (UC)

AT-69 BOARD

OLD)	IC20	8-759-064-54	s	IC HD63B05Y0E53F
201)	IC20	8-759-078-51	s	IC HD63B05Y0E64F

CN-579 BOARD(For DXC-930/930P/960MD)

OLD)	C22	NOT IN USE.		
112)	C22	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
OLD)	R37	1-218-298-11	s	METAL, CHIP 2.2K 1% 1/16W
207)	R37	1-218-271-11	s	METAL 2K 0.50% 1/16W
OLD)	R38	1-216-864-11	s	METAL, CHIP 0-OHM
207)	R38	1-218-286-11	s	METAL, CHIP 91 0.50% 1/16W

CN-580 BOARD(For XC-009/009P)

OLD)	R31	1-216-864-11	s	METAL, CHIP 0-OHM
207)	R31	1-218-286-11	s	METAL, CHIP 91 0.50% 1/16W
OLD)	R32	1-218-298-11	s	METAL, CHIP 2.2K 1% 1/16W
207)	R32	1-218-271-11	s	METAL 2K 0.50% 1/16W

DXC-960MD

112) Serial No. 10001 through 10050
203) Serial No. 10051 through 10150
204) Serial No. 10151 through 10200
207) Serial No. 10251 and higher

XC-009

112) Serial No. 10071 through 10120
201) Serial No. 10121 through 10170
204) Serial No. 10171 through 10220
207) Serial No. 10321 and higher

XC-009P

112) Serial No. 10001 through 10030
201) Serial No. 10031 through 10060
204) Serial No. 10061 through 10110
207) Serial No. 10111 and higher

IF-354/354P BOARD

OLD)	C62	NOT IN USE.		
203)	C62	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
OLD)	C63	NOT IN USE.		
203)	C63	1-135-210-11	s	TANTALUM 4.7uF 20% 10V
OLD)	C64	NOT IN USE.		
203)	C64	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
OLD)	Q64	NOT IN USE.		
203)	Q64	8-729-427-83	s	TRANSISTOR XP6501
OLD)	R99	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
203)	R99	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
OLD)	R117	1-216-807-11	s	METAL, CHIP 68 5% 1/16W
202)	R117	1-216-864-11	s	METAL, CHIP 0-OHM
OLD)	R142	1-216-808-11	s	METAL, CHIP 82 5% 1/16W
202)	R142	1-216-864-11	s	METAL, CHIP 0-OHM
OLD)	R146	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
203)	R146	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
OLD)	R156	NOT IN USE.		
203)	R156	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
OLD)	R157	NOT IN USE.		
203)	R157	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
OLD)	R158	NOT IN USE.		
203)	R158	1-218-740-11	s	METAL, CHIP 100K 0.50% 1/16W
204)	R158	1-218-739-11	s	METAL, CHIP 91K 0.50% 1/16W
203)	R159	NOT IN USE.		
203)	R159	1-218-700-11	s	METAL 2.2K 0.50% 1/16W

MB-380 BOARD

OLD)	CN10	1-690-670-11	s	CABLE, FLAT (1.0MM) 15P
203)	CN10	1-690-670-12	s	CABLE, FLAT (1.0MM) 15P
OLD)	CN11	1-690-670-11	s	CABLE, FLAT (1.0MM) 15P
203)	CN11	1-690-670-12	s	CABLE, FLAT (1.0MM) 15P
OLD)	L3	1-412-026-11	s	INDUCTOR CHIP 1uH
203)	L3	DELETED.		

OLD)	L9	NOT IN USE.		
112)	L9	1-412-535-41	s	INDUCTOR 68UH

PR-158 BOARD

OLD)	C2	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
112)	C2	1-162-910-11	s	CERAMIC 5PF 0.25PF 50V
OLD)	C50	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
112)	C50	1-162-910-11	s	CERAMIC 5PF 0.25PF 50V
OLD)	C127	1-102-074-00	s	CERAMIC 0.001uF 10% 50V
203)	C127	1-162-964-11	s	CERAMIC CHIP 0.001uF 10% 50V

OLD)	C128	NOT IN USE.		
203)	C128	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
OLD)	Q56	8-729-117-32	s	TRANSISTOR 2SC4177
203)	Q56	8-729-427-83	s	TRANSISTOR XP6501
OLD)	Q64	8-729-117-16	s	TRANSISTOR 2SA1611-M6
203)	Q64	8-729-427-83	s	TRANSISTOR XP6501

OLD)	Q87	NOT IN USE.		
203)	Q87	8-729-117-32	s	TRANSISTOR 2SC4177
OLD)	Q89	NOT IN USE.		
203)	Q89	8-729-117-32	s	TRANSISTOR 2SC4177
OLD)	Q90	NOT IN USE.		
203)	Q90	8-729-117-32	s	TRANSISTOR 2SC4177

OLD)	R136	NOT IN USE.		
203)	R136	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
OLD)	R137	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
203)	R137	1-218-253-11	s	METAL, CHIP 2.32K 0.5% 1/10W
OLD)	R138	1-218-716-11	s	METAL 10K 0.50% 1/16W
203)	R138	1-218-255-11	s	METAL, CHIP 2.67K 0.5% 1/10W

OLD)	R139	1-218-716-11	s	METAL 10K 0.50% 1/16W
203)	R139	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
OLD)	R143	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
203)	R143	DELETED.		
OLD)	R145	1-218-272-11	s	METAL 5.1K 0.50% 1/16W
203)	R145	DELETED.		

OLD)	R146	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
203)	R146	DELETED.		
OLD)	R147	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
203)	R147	DELETED.		
OLD)	R148	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
203)	R148	DELETED.		

OLD)	R149	1-218-707-11	s	METAL 4.3K 0.50% 1/16W
203)	R149	DELETED.		
OLD)	R150	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
203)	R150	DELETED.		
OLD)	R171	NOT IN USE.		
203)	R171	1-218-256-11	s	METAL, CHIP 3.32K 0.5% 1/10W

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OLD)	R172	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
203)	R172	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
OLD)	R173	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
203)	R173	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
204)	R173	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W

OLD)	R177	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
203)	R177	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
OLD)	R180	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
204)	R180	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
OLD)	R196	NOT IN USE.		
203)	R196	1-218-252-11	s	METAL, CHIP 2.26K 0.5% 1/10W

OLD)	R197	1-218-271-11	s	METAL 2K 0.50% 1/16W
203)	R197	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
OLD)	R199	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
203)	R199	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
OLD)	R212	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
203)	R212	DELETED.		

OLD)	R244	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
203)	R244	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
OLD)	R282	NOT IN USE.		
203)	R282	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
OLD)	R283	NOT IN USE.		
203)	R283	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W

OLD)	R284	NOT IN USE.		
203)	R284	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
OLD)	R285	NOT IN USE.		
203)	R285	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
OLD)	R286	NOT IN USE.		
203)	R286	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W

OLD)	R287	NOT IN USE.		
203)	R287	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
OLD)	R288	NOT IN USE.		
203)	R288	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
OLD)	R289	NOT IN USE.		
203)	R289	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W

OLD)	R290	NOT IN USE.		
203)	R290	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
OLD)	R291	NOT IN USE.		
203)	R291	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
203)	R292	NOT IN USE.		
203)	R292	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W

OLD)	R293	NOT IN USE.		
203)	R293	1-249-441-11	s	CARBON, 100K 5% 1/4W
207)	R293	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
OLD)	R294	NOT IN USE.		
207)	R294	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W

OLD)	R295	NOT IN USE.		
207)	R295	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
OLD)	R296	NOT IN USE.		
207)	R296	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W

OLD)	R300	NOT IN USE.		
204)	R300	1-216-063-00	s	METAL, CHIP 3.9K 5% 1/10W
207)	R300	NOT IN USE.		
OLD)	R301	NOT IN USE.		
204)	R301	1-216-063-00	s	METAL, CHIP 3.9K 5% 1/10W
207)	R301	NOT IN USE.		

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OLD)	R302	NOT IN USE.	
204)	R302	1-216-063-00	s METAL, CHIP 3.9K 5% 1/10W
207)	R302	NOT IN USE.	

PR-158P BOARD

OLD)	C2	1-162-908-11	s CERAMIC 3PF 0.25PF 50V
203)	C2	1-162-910-11	s CERAMIC 5PF 0.25PF 50V
OLD)	C50	1-162-908-11	s CERAMIC 3PF 0.25PF 50V
203)	C50	1-162-910-11	s CERAMIC 5PF 0.25PF 50V
OLD)	C127	1-102-074-00	s CERAMIC 0.001uF 10% 50V
203)	C127	1-162-964-11	s CERAMIC, CHIP 0.001uF 10% 50V
OLD)	C128	NOT IN USE.	
203)	C128	1-162-927-11	s CERAMIC, CHIP 100PF 5% 50V
OLD)	Q56	8-729-117-32	s TRANSISTOR 2SC4177
203)	Q56	8-729-427-83	s TRANSISTOR XP6501
OLD)	Q64	8-729-117-16	s TRANSISTOR 2SA1611-M6
203)	Q64	8-729-427-83	s TRANSISTOR XP6501
OLD)	Q87	NOT IN USE.	
203)	Q87	8-729-117-32	s TRANSISTOR 2SC4177
OLD)	Q89	NOT IN USE.	
203)	Q89	8-729-117-32	s TRANSISTOR 2SC4177
OLD)	Q90	NOT IN USE.	
203)	Q90	8-729-117-32	s TRANSISTOR 2SC4177
OLD)	R136	1-216-832-11	s METAL, CHIP 8.2K 5% 1/16W
203)	R136	1-218-700-11	s METAL 2.2K 0.50% 1/16W
OLD)	R137	NOT IN USE.	
203)	R137	1-218-259-11	s METAL, CHIP 13.7K 0.5% 1/10W
OLD)	R138	1-218-716-11	s METAL 10K 0.50% 1/16W
203)	R138	1-218-254-11	s METAL, CHIP 2.55K 0.5% 1/10W
OLD)	R139	1-218-716-11	s METAL 10K 0.50% 1/16W
203)	R139	DELETED.	
OLD)	R143	1-218-271-11	s METAL 2K 0.50% 1/16W
203)	R143	DELETED.	
OLD)	R144	1-216-832-11	s METAL 8.2K 5% 1/16W
203)	R144	DELETED.	
OLD)	R145	1-218-704-11	s METAL 3.3K 0.50% 1/16W
203)	R145	DELETED.	
OLD)	R146	1-218-706-11	s METAL 3.9K 0.50% 1/16W
203)	R146	DELETED.	
OLD)	R147	1-216-834-11	s METAL, CHIP 12K 5% 1/16W
203)	R147	DELETED.	
OLD)	R148	1-218-298-11	s METAL, CHIP 2.2K 1% 1/16W
203)	R148	DELETED.	
OLD)	R149	1-218-708-11	s METAL 4.7K 0.50% 1/16W
203)	R149	DELETED.	
OLD)	R150	1-218-706-11	s METAL 3.9K 0.50% 1/16W
203)	R150	DELETED.	
OLD)	R152	NOT IN USE.	
203)	R152	1-218-254-11	s METAL, CHIP 2.55K 0.5% 1/10W
OLD)	R167	NOT IN USE.	
203)	R167	1-218-257-11	s METAL, CHIP 4.99K 0.5% 1/10W
OLD)	R172	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
203)	R172	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W

(PR-158P BOARD)

OLD)	R173	1-216-830-11	s METAL, CHIP 5.6K 5% 1/16W
203)	R173	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
204)	R173	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
OLD)	R177	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
203)	R177	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
OLD)	R180	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
204)	R180	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
OLD)	R197	1-218-271-11	s METAL 2K 0.50% 1/16W
203)	R197	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
OLD)	R199	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
203)	R199	1-216-824-11	s METAL, CHIP 1.8K 5% 1/16W
OLD)	R212	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
203)	R212	DELETED.	
OLD)	R227	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
203)	R227	1-216-831-11	s METAL, CHIP 6.8K 5% 1/16W
OLD)	R244	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
203)	R244	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
OLD)	R273	1-218-740-11	s METAL 100K 0.50% 1/16W
203)	R273	1-218-700-11	s METAL 2.2K 0.50% 1/16W
OLD)	R282	NOT IN USE.	
203)	R282	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
OLD)	R283	NOT IN USE.	
203)	R283	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
OLD)	R284	NOT IN USE.	
203)	R284	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
OLD)	R285	NOT IN USE.	
203)	R285	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
OLD)	R286	NOT IN USE.	
203)	R286	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
OLD)	R287	NOT IN USE.	
203)	R287	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
OLD)	R288	NOT IN USE.	
203)	R288	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
OLD)	R289	NOT IN USE.	
203)	R289	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
OLD)	R290	NOT IN USE.	
203)	R290	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
OLD)	R291	NOT IN USE.	
203)	R291	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
OLD)	R292	NOT IN USE.	
203)	R292	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
OLD)	R293	NOT IN USE.	
203)	R293	1-249-441-11	s CARBON, 100K 5% 1/4W
207)	R293	1-216-845-11	s METAL, CHIP 100K 5% 1/16W
OLD)	R294	NOT IN USE.	
207)	R294	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
OLD)	R295	NOT IN USE.	
207)	R295	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
OLD)	R296	NOT IN USE.	
207)	R296	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
OLD)	R300	NOT IN USE.	
204)	R300	1-216-063-00	s METAL, CHIP 3.9K 5% 1/10W
207)	R300	NOT IN USE.	
OLD)	R301	NOT IN USE.	
204)	R301	1-216-063-00	s METAL, CHIP 3.9K 5% 1/10W
207)	R301	NOT IN USE.	
OLD)	R302	NOT IN USE.	
204)	R302	1-216-063-00	s METAL, CHIP 3.9K 5% 1/10W
207)	R302	NOT IN USE.	

SG-194/194PBOARD

OLD)	C55	1-162-923-11 s	CERAMIC, CHIP 47PF 5% 50V
203)	C55	DELETED.	
OLD)	C66	1-162-806-11 s	CERAMIC 0.1uF 10% 50V
203)	C66	DELETED.	
OLD)	C67	NOT IN USE.	
202)	C67	1-164-156-11 s	CERAMIC 0.1uF 25V
OLD)	R63	1-216-834-11 s	METAL, CHIP 12K 5% 1/16W
112)	R63	1-218-716-11 s	METAL 10K 0.50% 1/16W

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

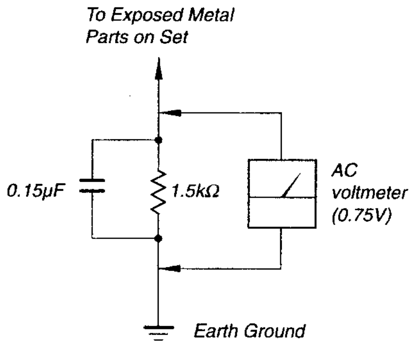

Fig. A. Using an AC voltmeter to check AC leakage.